AMERICAN ANNALS

OF

The Deaf

ORGAN OF THE CONVENTION OF AMERICAN INSTRUCTORS OF THE DEAF,

EDITED BY

IRVING S. FUSFELD

UNDER THE DIRECTION OF

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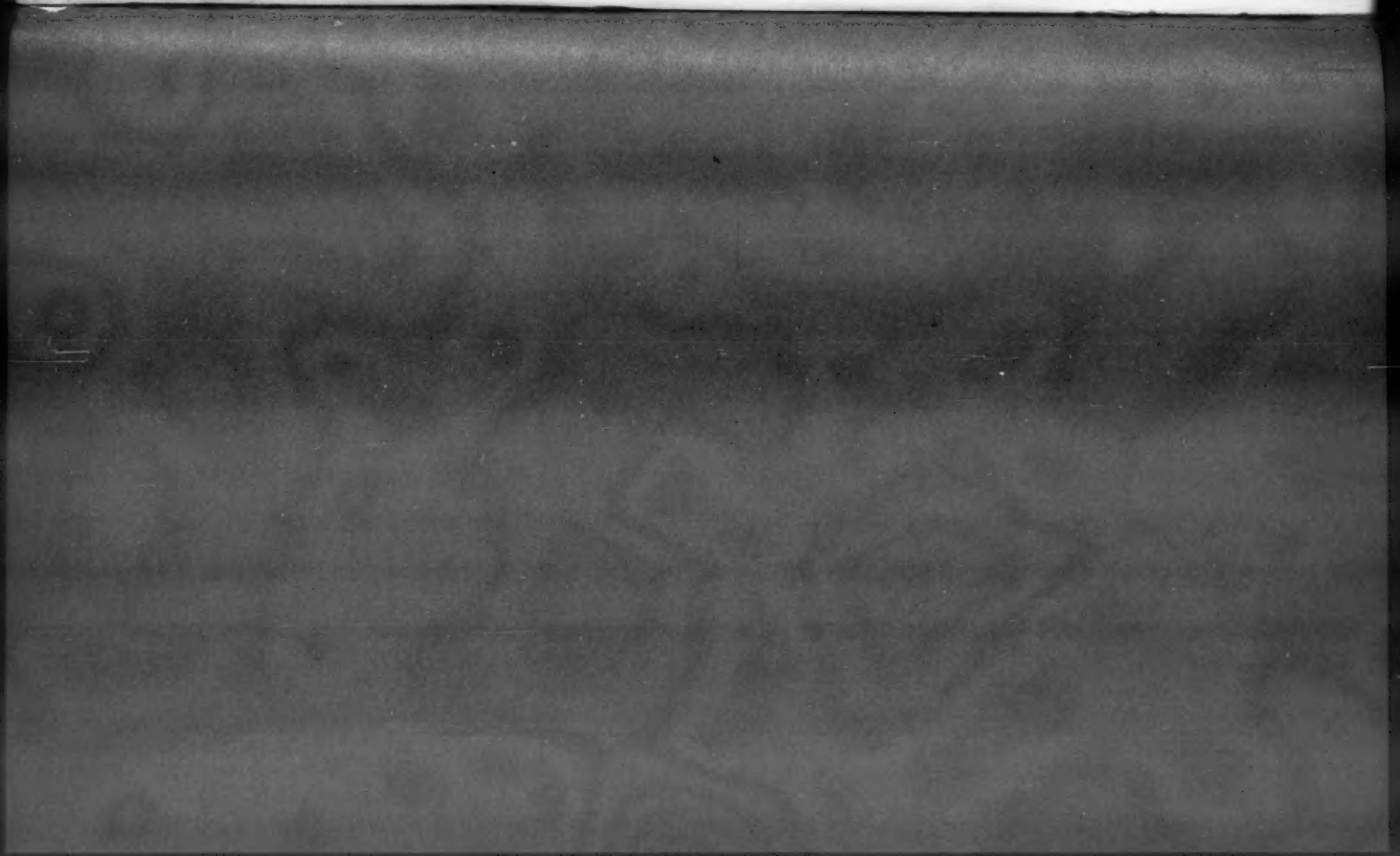


AMERICAN ANNALS OF THE DEAF
VOL. LXVII MARCH, 1922 No. 2

THE TWENTY-THIRD MEETING OF THE CONVENTION OF AMERICAN INSTRUCTORS OF THE DEAF

To the Members of the Convention of American Instructors of the Deaf.

Dear Friends: The Executive Committee of the Convention has accepted the invitation of the authorities of the Ontario School for the Deaf, at Belleville, to hold the twenty-third meeting of the Convention at their Institution, in the latter part of June, 1923.

This meeting will not be a joint gathering of various associations in this country, interested in the education of the deaf, but will be a regular meeting of the Convention. The teachers of Great Britain and her dominions will be invited to participate in the programme so that our gathering may be international in scope.

In accordance with the Constitution of the Convention, "all persons actively engaged in the education of the deaf may enjoy all the rights and privileges of membership .... on payment of the prescribed fees and agreeing to the Constitution." It is hoped that many persons now eligible for membership but not on the rolls will avail themselves of the privileges of membership by sending the initiation

fee of $3.00 to Dr. J. Schuyler Long, School for the Deaf, Council Bluffs, Iowa. Dues thereafter are $1.00 per year.

Superintendent E. McK. Goodwin, School for the Deaf, Morganton, North Carolina, as Vice President of the Convention, is in charge of the programme for the coming meeting, and is preparing to make it the most interesting and helpful one ever given.

The programme, the exact date of the meeting, and further details, will be announced in the *American Annals of the Deaf* at a later time.

It is hoped that this gathering will bring together a large representation of heads of schools, teachers, officers, and friends interested in the welfare and progress of the deaf. Very truly yours,

PERCIVAL HALL, *President,*
Convention of American Instructors of the Deaf.

THEY WHO SEE DARKLY

There are quite a number of persons, trebly afflicted, who seem to have been so created that we, more fortunate mortals, may look upon them and give thanks that we are not as they.

Deafness is a misfortune, dumbness not altogether an unmixed ill, but to add to the burden a dimness of vision is piling up the misery. At least, so we, who stand aside and view the victims pityingly, are inclined to think.

But all things are comparative.

Most of these afflicted have never known what hearing means and have viewed their surroundings always "as through a glass darkly." It is those who have been deprived of hearing or sight in later life who suffer the most bitterly, for sorrow's crown of sorrow is remembering other things.

It has fallen to my lot to teach the deaf and to lead the blind and, from time to time, to have in my charge those trebly afflicted. It was the late Mr. William Wade, benefactor and beloved friend of the blind-deaf of America and perhaps of the world, who first interested me in this class of unfortunates, and from him I received literature that, being true, was stranger than any fiction.

Probably the saddest of any case so far brought to my attention was the first. In a roundabout way the information reached us of a young girl betrayed, deserted, deaf, blind, and destitute, with two helpless children to care for. A long search ended in a cold bare room in surroundings of bitter poverty. Somehow, all the wrongs and sufferings had not succeeded in dimming the intelligence of the young woman and

it took but a short time to teach her Braille and New York Point, and thus were brought into her darkened life somewhat of light and slight happiness. When kind Death brought her peace, rest, and eternal light, none could mourn.

Long afterwards an English lad was brought to us, deaf and almost entirely blind. His was a peculiar case, for though stricken with blindness when a small child he had partially recovered his sight, then deafness closed out all outer sounds. The family emigrated to Canada and there blindness again descended upon the stricken child. He had learned to write and he still retained his speech, but his language was that of an uneducated person. Gradually he learned to read manual spelling by touch, although he often tried to read it by sight, holding our hands close to his dimmed eyes. He was taught Braille, New York Point, and Moon type for the blind and to write on the frame used by the blind. He learned very rapidly and it was not long before he had mastered an ordinary Underwood typewriter, on which he wrote many of his lessons.

He was encouraged to continue to write with pencil and pen, for that was the only way that later he could communicate with the persons with whom he would be thrown in association, and who would always have to communicate with him by spelling into his hands. His manner of communication with his deaf mates was by signs which they soon taught him, and although he could speak, he was quite as likely to gesticulate to a hearing person as to one who was deaf, as he could not distinguish one from another. He never finished the school course, but nevertheless he is now a self-supporting man, being employed in a shop for the blind.

One day our evening paper contained an account of a mine explosion in a nearby town, wherein two workmen had been severely injured and one had been taken to the hospital in the city. A day or two later my husband received a request to call at the hospital as the man there was deaf, and had been blinded by the premature explosion of dynamite in the mine accident, and no one of the hospital staff was able to communicate with him. Arriving at the hospital, Mr. Balis was led to a ward where a figure swathed in bandages was frantically waving a hand with the fingers forming the letter *W*.

"What does he want?" asked the worried nurse, "He has been doing that for hours."

"Water, water!" said my husband, and the nurse sped away for the desired liquid.

Sight has never been restored to the poor man and for awhile his reason tottered on its throne. What wonder! Imagine yourself deprived of hearing and speech and then suddenly to be plunged into never ending darkness as well.

His faithful wife has been his constant companion and attendant for the past fifteen years, protecting him from injury and defending him from wrong. Little of interest to him occurs that he does not learn from her willing fingers. Braille and New York Point were too fine for his blunted, work-worn and roughened fingers, but Moon type was a blessing, and everything that can be procured in that type is secured for him, the libraries of the blind all over the country contributing from time to time.

What impresses one most is the resignation of these terribly afflicted mortals, their pathetic patience, and their gratitude for every small kindness. They ask for so little, yet deserve so much consideration at our hands.

One wonders why God permits such things to exist. Perhaps their presence among us is to make us more thankful for our own good eyesight, our hearing, and manifold other blessings which we take as a matter of course in our daily lives.

One day a little girl, walking uncertainly and gropingly, was led into my room. She was a small, pathetic figure, shy and shrinking, as if the blows of fate had frightened and crushed her. One eye was entirely gone and the remaining so affected that sight was practically nil. Disease had wrought terrible havoc with her physically, but had left her brain untouched and her brave little heart undaunted. Her ambition knew no bounds. At first it seemed that it would be necessary to resort to Braille or New York Point in order to instruct her, but I soon realized that as long as she retained a remnant of sight she would persist in using it. So as powerful a reading glass as could be procured was given her, and her voyages of discovery began.

She was soon trying to read everything that she could lay her hands on, and every object that she came across was scrutinized beneath her glass. Her surprise and delight at what she could discern were pleasant to witness. She also made some discoveries as to other possible uses of her glass, and when a strong scent of burning leather was traced to her vicinty, it was to find her industriously experimenting with the glass to see if it would burn her boot laces as well as paper.

For awhile her unbounded curiosity made her rather a trial, but the novelty of discovery wore off as time passed. Her insatiable thirst for information finds her always at my elbow or at my feet

when in the schoolroom, as she follows me around asking endless questions, of which her favorite is "Why?" She never seems to forget what she is once told. Apparently her brain is constructed on the plan of a series of pigeon holes in which she stores all information for future reference, and when she wants anything appears able unfailingly to put her finger upon it.

In all communications with her by writing or spelling I use precisely the same language I would use in talking to a child with hearing. Occasionally it may be necessary to explain some word or expression, but as a rule she seems to have little difficulty in grasping my meaning. With her schoolmates she uses signs, but she employs them in the same order as one would speech, which is not at all usual in a deaf child, who generally uses signs ideographically. She can see signs but dimly, and spelling not at all unless the hand is held within a few inches of her remaining eye.

She writes nicely, holding her glass close to the paper as she writes. Her written language is not only like that of any normal child of her age but is so correct that her powers of assimilation and reproduction are a constant wonder to me.

In teaching her geography, globes and maps cannot be used unless they are the raised maps for the blind, but in most other studies she seems to have little difficulty in reading an ordinary book of clear type. Where possible, objects are shown her. In arithmetic she is very quick and almost always correct; written problems rarely puzzle her. Given fifteen minutes to read a short story she then reproduced it in her own language, missing no point.

Memorizing is play for her. One or two repetitions of a verse or of a short story and she will reproduce it almost word for word. With reading glass held before her eye an inch or two from the page she pores over books hour after hour unless compelled to stop.

Her patience is a rebuke to the rest of us and her ambition shames the laggards.

Her power of concentration is in a measure due to the fact that she is so shut off from outward distractions.

Ultimate total blindness is her fate, and in preparation for that time we are teaching her all we can so that when darkness falls she may have a well-stored mind which will lessen the bitterness and loneliness of life for her. Then she will have to learn the print for the blind but she will learn it quickly. She can read manual spelling by touch; some day it will be the only way anyone will be able to communicate with her.

Affectionate, unselfish, and generous to a fault she is a constant reproach to those of opposite disposition.

There are a number of others who see but dimly things that are passing about them. They grope about stumbling over objects, falling, picking themselves up again, never complaining, and never entirely discouraged, although but partially visualizing what is placed before them and therefore not comprehending clearly. Misjudged by the thoughtless, reprimanded by the unobservant, they struggle against odds that would daunt many a stronger person in no manner afflicted. That they learn at all is a continual surprise to me. But learn they do.

Although with some of them it is two steps forward and one backward, yet they progress. How little of brightness and how much of shadow there will be in their lives! One does not like to contemplate what the future has for them and again we ask, "Why are such things?"

One day I was called to see a fine looking young boy and one glance revealed that he was almost sightless. The sins of the parents had been visited upon him. All his life he had been under the handicap of near blindness but he had never attended a school for the blind; his public-school teachers had pronounced him "stupid." The adjective was misplaced. He had not learned how to read and knew nothing of numbers. Beyond his own name and the name of his home town, he did not seem to know how to write, excepting *issippi,* a combination of letters which seemed to have a fascination for him, the repeated letters at some time probably having attracted his attention and interested him. He could speak well, but refused to do so when one wished him to. His deafness had been of gradual growth and when he came to us he could not hear a word. Communication with him was impossible as both alphabet and writing were unknown to him. His parents were greatly distressed at his condition and grieved at their inability to talk to him. His mother had read much to him before his hearing became impaired.

When I gave him a ball, he felt of it and said "ball," then tossed it aside. I handed it back to him and wrote on the slate in letters six inches high, *ball.* As it conveyed no meaning, I tried printing the letters, but still without success, and he turned away disgusted with us. I held his finger and traced

the letters, but he jerked his hand away. I spelled b-a-l-l into his hand but the only result was to make him angry and then obstinate. This process went on for days. Dozens of objects were placed before him, and though he always spoke the names of the objects brought to his attention, he flatly refused to try to spell or write.

A little boy in the class who had been an interested observer of the proceedings remarked that he thought he could teach him. He was told to try, and the two boys were left together before the blackboard. Some time later when I again noticed them the poor blind child was actually laughing, and they were left undisturbed. In some mysterious manner the little fellow had aroused his interest; in a week he had taught him his letters and to read them when printed very large upon the blackboard. There is a saying, "Set a thief to catch a thief," but in this case it should read, "Set a boy to teach a boy."

Thereafter it was plain sailing, although not always smooth, so long as we stuck to the names of objects. One day we used the conjunction *and*. Instantly he turned to his boy teacher and demanded to be shown *and*. He was quite indignant at our failure to produce the object. For several days he went about hunting for "that thing *and*" as he expressed it, and mystifying people by asking them to show him *and*. By constant repetition he finally grasped its use, but later we encountered *but* and then his search for "that thing *but*" began.

I used to watch him studying a new word or sentence. He would repeat it over and over orally, evidently trying to get the sound of it, and gradually he came to recognize words that he had once heard but had never seen or spelled before.

For some months he dictated his letters. Then one day, after I had taken his dictation, I made him copy it all and write it himself. The writing was far from good and ran all over the paper and off it, but as long as he was trying to write and was interested I ignored the penmanship. Gradually he became able to distinguish written characters with the aid of a reading glass, after which he tried to read large type.

His progress thereafter was remarkable. His dormant brain seemed to awaken and past information stored in the hidden recesses of his mind returned to him. His ambition was aroused. At first he had to be led about the buildings and grounds, but in time he got his bearings and scorned help, and wanted to do everything the other boys did in school and out. He took up almost all the course of the higher class, and read everything that he could see. His desire to learn was boundless. Discovering that a former schoolmate and chum in the public school was studying French, he determined not to be outdone and French became one of his studies.

But as he himself expressed it, "Arithmetic and I are not good friends." It assuredly was not his strong point, and a lesson in arithmetic was a sore trial to both teacher and pupil. Stories of travel and adventure were his favorites. He even undertook the writing of a book himself, and for weeks worked diligently at his self-appointed task. However, the fancy passed and the book is still unpublished.

A sweeter smile never brightened the visage of a child than that on the face of a little seven-year-old girl who became our charge for awhile. Seven years

old and almost as helpless as an infant. Soft flaxen curls fell about the innocent face, and sightless blue eyes gazed vacantly into space. Her dainty, slender, white fingers were so weak they could scarcely bear the weight of a light rubber ball. The simplest personal service was beyond her powers, not that she was altogether incapable but largely the result of mistaken kindness on the part of her friends, seemingly never having been taught or permitted to wait upon herself, as every need, desire, and move had always been anticipated. The result was a helplessness that was all the more pitiful because so largely unnecessary. Apparently she was not absolutely deaf, but the hearing she retained was of no practical benefit to her. Her eyes still seemed able to distinguish between light and dark. It took hours of effort to teach her to hold a ball and many more to induce her to throw it. Numerous were the devices employed to arouse her dormant mind and strengthen her unused muscles.

Concentration seemed impossible for her, but by persistent efforts she was taught to be less helpless. The buttoning of clothing and lacing and unlacing of boots was a very difficult undertaking for her and required many lessons. A large dressed doll was given her and this she learned to undress and dress again, but the buttoning of its clothes always worried her and she would ask assistance of anyone in her vicinity. One day she was seen trying to get the doll's undershirt over her own head, but there she encountered difficulties and had to be forcibly extricated.

She learned to walk up and down stairs without assistance and in time she was walking and running

about almost as freely as the children with sight. But hers was a case where individual attention was imperative, and as this cannot be given in a public institution, she never returned to school after one session. It is safe to say, however, that she could have received some instruction although it never would have been much.

All the preceding goes to prove that it is not impossible to instruct a deaf-blind child or adult if he has the least glimmer of intelligence. Not all can achieve what has been accomplished by Linnie Haguewood, Tommy Stringer, Katie McGuire, Leslie Oren, Helen Keller, and others, but what they do achieve is truly remarkable. Could they but have the same attention and advantages of those more favorably situated, there is no doubt but that they too would be shining lights.

Although much depends upon the capability of the pupil, it must also be acknowledged that much depends upon the ability of the teacher. Anyone can teach a bright child, but not everyone can teach those of other caliber. Every school has it subnormal pupils, its defectives, and its afflicted who present serious problems. The show pupils of the school are not the interesting ones, but those pushed into the background who have to surmount such great handicaps and overcome obstacles never dreamed of by those in the foreground. They are the marvels of our educational system. The manner of their redemption is cause for wonderment, study, research, and experiment.

Every school for the deaf meets with cases—a class betwixt and between—that no one really understands and few are willing to tackle educationally,

knowing the rewards in many instances are meager and that their efforts will meet with no encouragement and less appreciation. Each case is a problem in itself and the method pursued with one may be a complete failure with another. Sometimes an apparently hopeless case will suddenly develop and accomplish what was thought beyond its powers. Sometimes, like the proverbial worm, a hectored child will turn and one is amazed at his transformation.

Well do I remember a backward pupil on whom no one had been able to make any impression until one day her arch enemy stuck the point of a pen into her surprised person and things happened swiftly thereafter. But it was the one thing needed to arouse her to action that, though slow, thereafter was permanent. A certain atrophied section of the brain had been excited to action. The human brain is a strange thing, only a mass of gray matter, but on its development depend life and happiness. Some of the mentally stagnated can be likened to a stalled automobile engine, for who that owns a car has not at some time suffered from an unaccountable refusal on its part to move until the defective part in the engine is located, and then away it goes! It would simplify matters immensely if we were able to take apart the brain and hunt for the obstruction, as we do with an automobile engine. All we can do is to coax, push, lead, and sometimes crank up, according to circumstances. If there is an occasional explosion, who can wonder?

Theories are knocked flat when it comes to teaching this class of children; it requires practical, downright, hard work. They need much encouragement —as do their teachers—but they cannot be allowed

to slacken their efforts, for therein lies defeat. When near blindness is added to deafness and an atrophied brain, the combination is most pitiable. Then is required the greatest patience, skill, and ingenuity on the part of all who have dealings with the afflicted person.

It appears to be the special province of women to undertake the care and training of such unfortunates. They seem better qualified for such a responsibility, more patient, and more sympathetic. One is sometimes led to wonder if all the effort, strain, and nervous energy expended is worth while, for but few of these unfortunates can ever be self-supporting. Then, when one succeeds the encouragement is so great that we go on working and hoping.

Undoubtedly, if each case could have individual instruction, the results would be far better, but when a number are put together in a class there is little chance for the necessary individual attention such as should be given. It is quite likely that no two are receiving the same instruction at the same time, and the diversity is confusing and trying to pupils and instructor. Still the struggle continues and probably always will, for as the population increases the number of subnormal also increases, and so the problems they bring will always be present in every school for the deaf.

SYLVIA CHAPIN BALIS,
Instructor in the Ontario School,
Belleville, Ontario, Canada.

The most important problems in the teaching of arithmetic are those of economy and efficiency, and these problems confront every thoughtful teacher.

The basis for number facts is counting. In having pupils count objects, care should be taken to prevent them from getting the idea that the first object is "one," the second is "two," the third is "three," etc. This may be avoided by presenting groups of objects and asking "how many?" Objects should be used in the classroom that are interesting to the pupils, until the rote counting can be applied to the "how many?"

Before the children are taught any of the primary combinations, they should recognize the names and meaning of the figures. That is, they must come to associate the figures with the names and with the objects. Teachers can devise many interesting ways of presenting it so as to fix these relations. One very enjoyable way to accomplish this is through a little matching game. Thirty cards are used, ten containing figures 1 to 10 (one figure on each card), ten others containing the names one, two, three, etc., and ten others containing objects like dots arranged on domino cards. These cards are distributed among the pupils. A pupil is named to come forward and show his card. The other pupils match the card by coming forward and standing in line as—

In this manner, as well as with similar devices,

pupils soon associate the figures with the names and the things which they represent.

Very often teachers in the primary grades violate every principle of economy. This fact is shown when we find pupils in the upper grades counting on their fingers. To overcome this more drill work is needed.

There are certain essential facts and processes that must be made automatic. It is not sufficient that a child knows 4 and 3 are 7, or 5 less 2 are 3, or 4 times 3 are 12. He must automatically recall the fact when seeing the figures or reading the numbers from the lips, without consciously recalling the "how many" denoted by the numbers.

The fundamental facts should be rationalized by concrete objects. But when the meaning of the facts has been made clear, the objects should be discarded and drill with abstract numbers given until these facts become automatic. Objects are used to fix the meaning of addition, etc., but not to fix the facts themselves. In these drills, if a pupil miscalls a fact, the correct result should be told him at once. Nothing is gained by having him find the result through counting. To let him do so establishes a "counting habit" which must be broken up later.

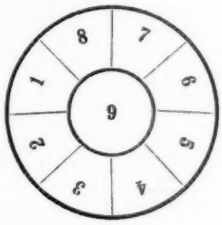
When a pupil is slow and inaccurate in written work or has the "counting habit," it is evident that there has not been sufficient drill in developing the fundamental abilities.

The drill work necessary to have these facts become automatic need not be dull or repressing. It can be made the most enjoyable part of the work. An appeal to the play instinct, the use of scoring games, flash cards, charts, races, playing store, and various other games stimulate a keen interest in the work.

If the thing taught a child can be made to meet his needs or interest, he finds little trouble in learning it. Since play is the chief activity of most children of primary grades, it may be used to great advantage in the early number work.

Of the schoolroom games, the scoring games are perhaps the most familiar to all. Very little skill is required in scoring games. Every throw will give a number for a combination. The targets include all the nine digits. Below are targets that may be used in "Ring Toss."

1	7	3
6	9	5
4	8	2



These targets may be drawn on the floor. Each pupil in turn stands a given distance from the target and throws two rings. He must then call the sum or the product, depending upon the drill, of the numbers his rings hit.

After pupils are a little more advanced this game may motivate the written addition, using the same target with larger numbers. The pupils choose two captains, one being "red" and the other "blue." The blackboard is divided into two parts, one for the "reds" and the other for the "blues." After each pupil makes his "throw," the next in line (alternating from one side to the other) quickly picks up the rings. Each one after he has had his turn, must write his combination with the sum on his cor-

responding side of the blackboard, and so on down the lines. When the teacher calls time, the two captains begin to cancel like sums. For instance, if the "reds" have a combination that makes 10 and the "blues" have a combination (not necessarily the same numbers) the sum of which is 10, the tens are cancelled. The cancelling continues until all like sums are striken out. Then the remaining sums are added. The side which has the larger sum wins.

The "Blackboard Relay Race" is another interesting game. With the pupils closing their eyes, the teacher writes on the blackboard the combinations to be drilled upon. Two boards are used with the same combinations and the same order on each as:

7	6	8	5	9	6	7		7	6	8	5	9	6	7
+2	+4	+1	+4	+1	+2	+1		+2	+4	+1	+4	+1	+2	+1
—	—	—	—	—	—	—		—	—	—	—	—	—	—

At a given signal, the leaders of each team run to the blackboard and record the result of the first combination. They in turn give their crayons to the next in line, and so on down the line. This race may involve just two pupils at one time—the two recording the sums of the entire row of combinations. The one finishing first wins.

There is a game involving flash cards which is very good. All combinations are written on cards. One pupil stands before the teacher with his back to her. The teacher holds up a flash card so that all but the one standing may see it. Then the pupil standing designates the one whom he wishes to say, "It is ——. What makes ——?" If the card held up has the combination 7 plus 3, the pupil designated says, "It is ten. What makes ten?" If he does not guess 7 and 3, he must be seated. On

the other hand, if he guesses 7 and 3 he is given the card. Then the next in line stands as the one before did, and so on. They like to see who gets the largest number of cards. If they are learning to count by 2's or 5's, then they should be asked to count the cards they have by 2's or 5's.

These games get a maximum amount of number combinations before the class within the minimum of time necessarily taken up by the games.

HATTIE L. DEEM,
Instructor in the Gallaudet School,
St. Louis, Missouri.

The man who runs his own business may make calculations and keep accounts in hieroglyphical characters on his shirt cuffs. He need not explain the WHY or the HOW of it to anybody. The only risk he runs comes from irate creditors and the unsympathetic surroundings of a bankruptcy court. The writer knows the president of a big corporation who keeps just such accounts. The smash has not arrived yet but there is still plenty of time.

Conversation with government, state, city, and college examiners has elicited unanimous expression as to the slipshod methods of innumerable candidates who present themselves for civil service and matriculation examinations. The careless preparation of papers occurs in all subjects but is particularly pronounced in arithmetic.

Teachers from the kindergarten to the high school may not always be held blameless for this faulty, incomplete work on the part of their erstwhile pupils. There must be the certainty that the child has been thoroughly trained in the way it should go before it is possible to completely remove the stigma.

The mere placement of addition, subtraction, multiplication, and division symbols in the work of problem solution do not suffice, in themselves, to prove that the pupil knows exactly how or why a possibly correct sum, difference, product, or result has been secured.

Logic and mathematics demand detailed analysis as a fundamental necessity to the complete elucidation of any proposition or theorem. "*Blessed be drudgery,*" for it is only by the will to undertake and

carry out the over-and-over-again process that any learner can ever expect to attain real knowledge and wisdom.

The purpose of this article is to unfold a simple series of four arithmetical formulas. Long experience has proved them to be of great value to deaf children in the explicit, careful, and concise solution of written problems in number work. The usual any-old-way style is about as illustrated in the following example:

Joe Smith bought 42 pencils at twelve cents each; how much did he pay for all?

$$42 \times .12 = \$5.04$$

The cent and dollar signs are frequently omitted and it is rare that anyone will designate the product as the answer. True that the solution is correct but it fails entirely to give proof that the pupil knew WHY he multiplied 42 by 12 or HOW he got the answer. He may have reasoned, guessed, or even copied it, for the figures alone do not establish the process by which he secured the right result. If an intelligent system of explanation, uniform or otherwise, be given with the figures, then the answer is backed by the analysis, and the teacher is sure that the child knows both why and how.

The Four Formulas, either singly or in combination, will unravel practically every problem possible of presentation. The First and Second Formulas will carry the pupils along through the sixth grade. The Third and Fourth will cover the higher grades and, in their combinations with the First and Second, will be of limitless service throughout the wider range of advanced arithmetic and even algebra.

SYMBOLS

The symbols used throughout the Formulas are those common to all arithmetic, to wit:

$\therefore$ Therefore.
$\because$ Wherefore or Whence.
——×——, or —— times —— The one multiplied by the other.
——÷——, or —:— The greater divided by the lesser.
= Equals, or is equal to.

The words If, Then, and Answer complete the list.

THE FORMULAS

No. 1

Purpose: To find the cost (weight, size, contents, measure, number, etc.) of several things when the cost (weight, etc.) of one is given.

Formula: If 1 —— costs (weighs, etc.) ——
$\therefore$ —— —— cost (weighs, etc.) —— times —— = Answer.

Example: Mr. Jones bought 246 pounds of coffee at 45 cents per lb.; how much did he pay for all?

If 1 lb. cost \$0.45
$\therefore$ 246 lbs. cost 246 times \$0.45

\$0.45
246
270
180
90
All cost \$110.70 Answer

No. 2

Purpose: To find the cost (weight, size, contents, measure, number, etc.) of one thing when the cost (weight, etc.) of several things of the same kind is given.

Formula: If —— —— cost (weigh, etc.) ——
$\therefore$ 1 —— costs (etc.) —:— Answer.

Example: Mr. Jones bought 246 pounds of coffee for \$110.70; what was the cost per lb?

If 246 lbs. cost $110.70
∴ 1 lb. cost $\frac{\$110.70}{246 \text{ lbs.}}$

(If cancellation is understood then let the pupil cancel.)

Otherwise, 246)$110.70($0.45 Answer; Cost per lb.
98 4
12 30
12 30

No. 3

Purpose: To find the cost (weight, size, contents, measure, number, etc.) of SEVERAL things when the cost (etc.) of several things of the same kind is given.

Formula: If —— —— cost (etc.) ——
∴ 1 —— costs (etc.) ——
Then —— —— cost (etc.) —— times ——
Answer.

Example: A farmer had 348 sacks of grain valued at eight hundred and seventy dollars; what would 205 sacks be worth at the same rate per sack?

If 348 sacks valued at $870.00
∴ 1 sack valued at $\frac{\$870.00}{348 \text{ sks.}}$
Then 205 sacks valued at 205 times $\frac{\$870.00}{348 \text{ sks.}}$

(If cancellation is understood, let the pupil put it down in this way.)

$$\frac{\$870.00}{348} \times \frac{205}{1} = \$512.50 \text{ Answer.}$$

Otherwise, 348)$870.00($2.50
696
174.0
174.0
0

$2.50
205
12.50
500.0

Cost of 205 sacks, $512.50 **Answer.**

No. 4

Purpose: To find the cost (worth, value, weight, size, contents, measure, number, etc.) of CERTAIN things containing SEVERAL OTHER things, when the cost (etc.) of several of the same kind is given.

Formula: If —— —— cost (etc.) ——
∴ 1 —— costs (etc.) ——
Then —— —— cost (etc.) —— times ——
—— —— cost (etc.) —— times —— times ——
Answer.

Example: A railroad freight car contained nine automobile chassis valued at $2340.00; what would be the total value of a trainload of 28 freight cars each containing 23 similar chassis of the same average value?

If 9 chassis valued at $2340.00
∴ 1 chassis valued at $\frac{\$2340.00}{9 \text{ ch.}}$.

Then 23 chassis valued at 23 times $\frac{\$2340.00}{9}$

∴ 28 carloads valued at 28 times 23 times $\frac{\$2340.00}{9}$

(If cancelled: $\frac{\$2340.00}{9} \times \frac{23}{1} \times \frac{28}{1} = \$167,440.00$ **Answer.**)

Otherwise, 9)$2340.00
$260.00
23
780.00
5200.0
$5980.00
28
47840.00
119600.0

Value of 28 carloads $167,440.00 Answer.

The plurality of terms such as cost, worth, value, weight, size, measurement, contents, number, etc., in the examples given, illustrate the great variety of uses for each formula. They are not intended to be repeated in the actual use of any one of the formulas. The particular problem will indicate which is the correct term to use. The repetition of words may seem to be unnecessary, but experience proves that the persistent grind wins out in the long run. It is far better to be over than under explicit in the elucidation of a problem at an examination of more or less vital import to the participant. These simple formulas will be found of great value in the training of deaf children in the complete deductive statement for solution of problems in arithmetic. The writer has never experienced any difficulty in their oral or manual explanation to a class. They offer an easy form of analysis and tell at once the *why, how,* and *wherefore* of most questions in number work.

One of the leading financial writers of the *New York Press* made recently a startling statement relative to the loss of South American trade by many manufacturers and exporters of the United

States. He attributed the blame for this very unsatisfactory state of affairs to the tendency to abbreviate permitted among the pupils in our public schools.

The custom-house warehouses of the ports of Brazil, Argentina, Uruguay, Chile, Peru, etc., contain large consignments of rejected American manufactures and merchandise. The goods have been rejected not from any inferiority of workmanship or material but because of the persistent failure of American shipping clerks to send such manifests and invoices as customs regulations of the several importing countries demand. The South American importers send exact forms of the necessary papers to the shippers, but the slovenly abbreviations constantly perpetrated by the exporters' clerks cause these important documents to fail to fulfill the exacting government requirements of their foreign customers. Over and over again manifests, invoices, and way bills are returned to the exporter for correction, and over and over again they go forward with the same or similar errors. In the interim, market prices change and the consignee becomes indignant at the delay, with its consequent loss of time, customers, and money. He refuses finally to receive the consignment. European commercial travelers get his future orders, and the disciplined clerical help of those lands dot every *i* and cross every *t* as called for by the precise officialdom of the Latin in the South American republics.

When in Rome (or doing business with the Romans) we must do as the Romans do.

The general tendency to exaggerate the value of time and brevity, to the loss of exactness and finish

to our work, has become almost a national fault. All over the United States the public schools are being called to account in this matter. Penmanship, ruling, full explanation, strict attention to details, general system, and the refusal to take so much for granted are being demanded more and more in the business world every day.

The deaf child short of the high grade should never be allowed to abbreviate, and every paper presented to a teacher should be required to be in his best possible style as to neatness and the thought processes appertaining to the particular study.

Problems in arithmetic explained by the pupil, in accord with the Four Formulas demonstrated in this paper, will show conclusively that the language is understood, while the accuracy and finish will exhibit the groundwork of success in after-school life.

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MOTIVATION IN SCHOOLS FOR THE DEAF[1]

Motivation is quite a new word in our language. Applied to educational work it means furnishing the pupil with a reason and consequently a motive for undertaking the work in hand. To motivate is to supply the pupil with this reason or motive and as such may be accomplished through awakening the pupil's interest in the subject. To so arrange the subject matter or to take advantage of various situations and phases as will best arouse this interest may be said to be the object of motivated school work.

The education of hearing children has the experience of centuries to fall back upon. The education of the deaf dates back through a period of less than two centuries. Compared with the progress made in educational work with hearing children, schools for the deaf have made rapid strides. Without any general knowledge of the meaning of the word, they were pioneers in motivation work. They had to be; necessity compelled as well as urged them on.

Schools for the hearing were formerly for the most part a separate phase of the child's life. His education centered around the textbook and reached but little beyond. Connection with the child's home life or with his time out of school was so slight as to be almost negligible. Schools for the deaf, from their inception, being residential or home schools,

[1] This paper is the outgrowth of a lecture given before the combined faculties of the California Schools for the Deaf and the Blind on "Motivation in School Work," by Superintendent H. B. Wilson of the Berkeley Public Schools. Superintendent Wilson is co-author with G. M. Wilson of a book entitled "The Motivation of School Work," and is an educator of wide prominence throughout the United States.

supervised the entire time of the child for a major portion of the year. For nine or ten months they were the child's home. Hence exceptional opportunities were afforded for combining the home and school life of deaf children.

Schools for the deaf long anticipated the present effort to bring about a combination of home and school activities in the educational field. They anticipated the present-day demand for vocational training, being forerunners in the movement. Much of the work now treated as experimental in schools for the hearing, such as the Montessori method, originated in schools for the deaf. Such methods have long since passed the experimental stage in our schools. Some we have adopted, others we have rejected, according to their worth. Teachers for the deaf, meeting unusual obstacles, adopted unusual methods for overcoming them, methods beyond the imagination of even the ablest teachers of normal children.

The public schools of our country have been subject to much criticism. Most of this has been needless and unjust, but some has been constructive and temperate. The work in the schools is held to be in part unpractical and beyond the pupil's scope and interest. Methods of presenting important matters are criticized as useless and even harmful. Much of the same criticism, but along different lines, may be directed at our schools for the deaf. It is well to remember, however, that no school or system of schools can meet the public demand in all respects. There are not the proper facilities, and never will be, to make the schools perfect training grounds for the myriad adult activities of the nation. Nor can

a teaching force capable of meeting this demand ever be assembled. The doers in this world will always maintain their specialized skill sufficiently far enough in advance of the teachers as to leave an appreciable gap between the two groups. The best that can be hoped for is an approximation of the public demands. As broad a mental culture and as complete a vocational training as the interests and desires of the pupil will permit, combined with as much specialized training as school facilities and the abilities of teacher and pupil will allow, is about all that can reasonably be expected from our educational institutions.

As an example of motivation, H. B. Wilson and G. M. Wilson's book, "The Motivation of School Work," outlines a May Day Party given by a class of hearing children. Under the guidance of a skillful teacher, work was assigned covering many phases of classroom procedure. It had the added advantage of interest to the pupils. Being directly connected with the party which they were to give, the attention of the pupils was closely centered on the work. It was something that appealed to them for the moment. The children could see the necessity and importance of doing the things asked of them. In short the work was motivated.

There are arithmetical problems involved in finding the number of persons who would be in attendance, the quantity of refreshments needed, and the cost of the same. Language work was involved in preparing the invitations, in sending out cards of thanks to those who had aided in making the party a success, and in the compositions of the pupils covering the party itself. A programme was given at the

party. This involved singing, story-telling, and the dramatization of a story from Greek history. Thus most of the routine of schoolroom work was gone through without any of its tediousness. Behind all was the incentive to do the work through arousing the interest of the pupil. The practice in reading, writing, and arithmetic associated with carrying out this party was calculated to catch the eye and appeal to the fancy of the child. Work of the same character drilled into the pupil through the ordinary routine of school procedure would not have the same lasting effect on the child. Even if he made a conscientious effort to do the work well, there would be lack of interest, less retention in memory, less individual attention on the part of the teacher to particular pupils, more restlessness, and poorer discipline among the class as a whole.

There is nothing in this May Day Party as outlined above which has not been adopted and followed by schools for the deaf for years. Countless thousands of compositions have been written by deaf children describing their picnics, parties, and outings. The literary societies of our schools furnish the motive for many programmes similar to that given at the May Day Party. Even the singing has been transposed into the rendition of songs in signs by deaf children. Many a teacher of the deaf has interested her pupils in arithmetical problems connected with their social affairs. In addition, schools for the deaf attempt instruction in lines which public schools usually regard as home functions. Only in exceptional cases does the public school propose a supervision of the pupil's clothes, of his manners and general daily activities. These duties are a regular part of the daily routine of residential schools for the deaf.

The Wilsons devote a chapter to the psychological basis of motivation. Where interest is lacking in school work, dishonesty creeps in. To get by with his work the pupil practises deception and dishonesty, a course which weakens his moral nature. The right moral results can be secured only when the child is self-centered in his task. Investigation has shown that the apparent fatigue of school children with their work is not real. Where interest predominates there is no fatigue. In general, the learning curve is continuous where interest is sustained; plateaus appear showing temporary non-improvement when the child's attention is distracted. Better memory results and better discipline are secured with increasing interest on the part of the pupil in his work. This awakening of interest in the pupil is best assured by centering work on particular pupils or small groups of pupils as exigencies may demand or as occasions arise. These modes of securing the interest of the child and the results accruing after such interest has been secured have long been known to teachers of deaf children. This they have learned from the children themselves. The constant cry of the teacher of the deaf has been for smaller classes that more individual attention may be given. This has resulted in constantly decreasing the size of classes in our schools. They are in size little more than half of what they used to be. The ideal combination for individual instruction would be one teacher for one pupil, but for the general good of the pupil he also needs others to furnish the stimulus of competition and the emulation of example.

Another chapter of the Wilson book is given over to the origin and source of motives. While instinct is held the basis of motive, there are higher planes on which the pupil frees himself from his instinctive tendencies and controls his actions in the light of experience and conscious purpose. Different types of motives are discussed. Earning money and acquiring property is a motive for endeavor on the part of the pupil as well as for all of us. Whether money awards for excellence in school work is advisable in schools for the deaf is a mooted question. The practice prevails in some schools, but is not in vogue in the California School. The certainty to some pupils that they cannot win acts as a deterrent and discouraging factor.

Competing for results, a reward, or an honor is a second motive looking toward arousing the interest of the pupil in his work. Where properly handled a periodical examination furnishes a good motive for increasing the pupil's interest. In the California School the desire of the pupils to attain good marks in their examinations has for years been an incentive for extra endeavor. On the other hand, honor rolls, medals of honor, etc., have not produced the expected results. Prizes which have a commercial value have been found of benefit in some schools.

The playing of games, through arousing the competitive instinct, has been found a strong motive for endeavor among hearing children. These games have not been generally adopted in educational work with deaf children. Lack of language on the part of the pupil precludes many of the games. Other games which do not require language cannot be used to any great extent, as most of the deaf pupil's school

work must be made subordinate to or coördinate with his language work, so important is the latter. It is not considered profitable for deaf children to spend much time on games where language practice is lacking, however profitable the game might be otherwise.

Making things, as a motive for hearing children, has been a method long in use in our schools in the elementary grades and trades courses. Excellent results have been obtained, but there has not been nearly enough coördination with language work. Pupils are unable to describe the things they have made or even name the tools used.

Entertaining is a motive now used for instructing hearing children in the art of inviting, welcoming, and entertainment of their guests. It is also employed in our schools at parties, picnics, and dances, but not to the extent possible with hearing children. The guests at institution affairs are usually limited to teachers and officials of the school. More might be accomplished. Certain schools make a practice of having the domestic-science classes entertain. As well as training in the social side of life being given, there may be much language work interwoven in these affairs.

Sharing is a motive mentioned by the Wilsons. Children like to relate their experiences to others. Hearing children do this by means of speech. Deaf children communicate ideas to one another by means of signs, all efforts to the contrary notwithstanding. In the classroom under the watchful eye of the teacher, this may be arranged in the form of dialogues or conversations between pupils, but in contrast with the freedom and rapid exchange of ideas

in signs on the playground, these classroom exercises seem extremely mechanical and limited in extent.

The motive of advancing one's self in the estimation of others varies in classes of deaf children. Where the teacher has a dominant personality, the pupil may, through his very awe of the former, be motivated to greater endeavor. With a teacher of a kind and loving personality, there may result the motive to win the esteem of such a teacher. Of course all deaf children, as well as hearing children, desire to stand well in the eyes of their classmates.

Promoting self-development is a motive that appeals strongly to the deaf child. Somehow he realizes that he is in a class apart from the rest of humanity and it is only by continual self-development that he may compete successfully in after school life. Fitting for a life career is a motive falling under the same category. As the deaf child advances in years, it is the most important motive held out to him by the skillful teacher. The lives of successful deaf men and women are continually held before the eyes of maturing deaf children. The obstacles which these people have met and the pluck and persistency with which they have overcome all hindrances are a powerful incentive to the pupil, as well as a prospective guide to his future life. He learns that to succeed himself he must do certain things and do them well.

It is not possible to analyze or fully describe the various motives which may be used to increase a child's interest in his work. In general, experienced teachers of the deaf are very much alive to the importance of awakening and maintaining the pupil's

interest, though they may not have attempted to analyze these motives or even considered the possibility of thus treating them.

Part II of the book already referred to considers the motivation of fundamental subjects. It first considers the motivation of reading, but as this is with the deaf only a tributary subject to language work, we shall proceed to motivation of language and composition. Language is by far the most important topic to be treated under the education of the deaf. The hearing child before school age has a colloquial command of language. The deaf child has little or none. So in conjunction with reading and writing the latter must be taught the language itself. The free spontaneous expression by speech of the hearing child is usually expressed in signs by the deaf boy and girl, a language totally unlike what he is expected to read or write. The motivation work on the part of the language teacher of the deaf is correspondingly more difficult than in the case of teaching hearing children. If the child can be brought up in an environment free from signs and natural gestures, which is a difficult procedure, he will naturally have to express his ideas through the language used by hearing people around him. This is the procedure which some of our schools attempt to adopt, but if we are to take the accomplishments of graduates of our schools as a means of passing judgment upon methods employed, it may be said that no definite conclusions may be drawn as to the benefit of such an undertaking. Signs up to a certain extent at least are a means of rapid development of ideas, but their use to the exclusion of English in our schools is detrimental to the acquisition of the latter.

To furnish the pupil with proper motives for expressing his ideas in English is one of the most difficult tasks of the teacher.

The desire to acquire property is held as a prevailing motive in language work with hearing children. It may be money, a prize, or anything possessing commercial value. Newspapers and magazines are to an increasing extent offering money prizes of considerable amounts to school children for essays and compositions. Business men of Berkeley, California, are giving cash prizes to the pupils of the public schools for compositions on Thrift, Life Insurance, Americanism, and kindred topics, and the school authorities have made the writing of these compositions compulsory in all the schools above a certain grade. Considering the development of this phase of motivation in schools for the hearing, it might be well if monetary prizes were more frequently awarded for excellence or even the use of English in our schools. The Utah School has made cash awards to pupils who have refrained from the use of signs for stated periods.

Using the need for communication is a motive which can be brought home to deaf children. They realize that in conversing with hearing people they cannot fall back on signs. All purchases cannot be made simply by pointing at things on the shelves. The boy about to graduate often comes to his teacher for information as to how to apply for a job. Hearing friends can only be reached through the medium of written or spoken language. Then there are letters to the loved ones at home. A good deal of language work can be obtained from pupils along these lines, a fruitful source of motivation. The instinct of

sharing which hearing children use in detailing experiences to one another in colloquial or narrative form, such as vacation experiences, is usually employed by the deaf through the medium of signs. Transferred to dialogues and compositions in the classroom, this procedure loses much of its power of motivation. Entertaining through school programmes given on important occasions as a motive for language work with the deaf is not so fruitful as in the case of the hearing, but it has possibilities. Plays are frequently given by deaf children, but the language element is not as prominent as it might be.

Schools for the deaf are well equipped to appeal to the child's motive for preservation, as practically every school has a school paper and well equipped printing shop. Children who write for the school paper, whether it be a local item gleaned from the playground, news from home, or a more pretentious essay, are stimulated to greater effort with the consciousness that their work will not only be preserved but will also fall under the eyes of many others. The preservation of examination papers is another fruitful mode of increasing the pupil's desire to excel in these tests.

The study of formal grammar cannot very well be motivated with hearing children. They usually have the language to convey their ideas, whether by speech or writing. Any serious grammatical error "sounds queer" to them. Deaf children reason more as to grammatical accuracy. Though possessing a poorer command of English, the deaf child will frequently find grammatical errors that a hearing child would overlook. A judicious amount of

grammar is valuable to a deaf child and he usually applies himself assiduously to its acquisition. The need supplies the motive.

In teaching English the teacher will frequently find the need of the moment to be the proper motive. When the pupil desires to write a letter, to make an invitation or to answer one, to reply to an advertisement, or in any way to make use of written English, the motive is present and the experienced teacher will grasp the opportunity to make use of it. Artificial situations may be made use of, but their effectiveness is weaker. Where the need of conversation arises, English spelled, written or spoken can be employed; the necessity of the moment will be the motive here.

Establishing the motive for reading is a most difficult undertaking with deaf children. The child's desire for reading may be stimulated by telling stories in signs or by rewriting them in simpler language. He thus comes to realize that there is within his reach but not yet within his grasp an unexplored field of useful and pleasurable employment. The gap between these simpler modes of telling the stories and the actual reading of them is too great to be easily bridged. Books especially adapted for deaf children, leading from the simplest to more complex forms of language expression, have been printed, but they only partly meet the situation. The fact remains, no one knows exactly how, that a goodly proportion of our pupils are safely launched upon the reading habit. A great reward awaits the discoverer who first ascertains just how it is done. Our school libraries are replete with books to satisfy even the most assiduous of hearing children. With

younger deaf children games of various sorts can be evolved which will train the eye to take words and sentences at a glance. Simple stories may be told in part to them, as they grow older, leaving with them the printed story in book form to be read in whole or in part. The local items in the school paper are one of the stepping stones to the reading habit. The practice of older pupils in telling stories which they have read to younger companions also fosters the habit of reading. However it is acquired, and the sooner the better, the habit of reading is of inestimable benefit to the deaf in the acquisition of a working command of the English language.

In the motivation of history, the Wilsons outline many methods of increasing the pupil's interest. Historical events may be dramatized. Modern problems may be discussed in the light of past occurrences. Most of this is beyond the reach of the children of our schools. In the hands of a skillful teacher, much may be accomplished by vivid talks of past events, by weaving present-day occurrences with historical events under study in the textbook, or by using any other form of narrative calculated to arouse the pupil's interest. Despite all that may be said against the employment of signs in the classroom, these talks by the teacher can be vividly imparted to the pupil through the medium of signs.

Motivation in geography can be best secured with hearing children by discarding the custom which has been generally in use of making a detailed study of world maps and statistics of the various countries shown on these maps. In their place may be substituted the study of local maps and local problems, gradually branching off to more remote localities,

and taking up such data in connection with the latter that have a local bearing. Thus children residing within the vicinity of San Francisco Bay may study the topography of the region, the climate, products, cities, etc. The Bay may be compared with Puget Sound as a harbor; the city of San Francisco may be compared with Los Angeles and Seattle. There is much to visualize, with such a course in geography, which should appeal strongly to teachers of the deaf, to whom visualization means so much. As in the study of history, much depends upon the teacher; he can add much of local interest to what is in the textbook and make a vivid portrayal of the same to the pupils. Children of the public schools frequently correspond with children in other states and even in foreign countries. It is strange that such a course has never been followed amongst the children in our schools for the deaf, closely bound as they are. It would afford excellent practice in English, be of great assistance in geography, and provide a strong motive for increasing interest in both.

The motivation of arithmetic can probably best be accomplished through making use of competition. The subject is admirably adapted for this purpose. In the primary grades competitive games may be played. These games may even be carried into higher grades. In the parties at the California School the game of "buz" has quite a vogue. The players who sit in a circle count in order until some given number, as 5 or 7, or its multiple, is reached, when the player whose turn it is, instead of giving the number, says "buz." If he does not he is counted out. There are a great variety of other games suitable to deaf children and which involve simple math-

ematical principles. Visualized work motivates arithmetic to a marked extent. Pupils count objects, they measure with a ruler, things are weighed, liquids are measured, the capacity of bottles and other containers are found with dry and wet measures, time is estimated by clocks and the calendar, objects of given length and width or of fractional parts are selected from a pile or cut out from paper. The arithmetical work may be further motivated by correlation with work in the cabinet shop, in the printing office, the tailor shop, and in the domestic science and dressmaking classes. Wood must be measured, type must be spaced, clothing must be cut out to measure and estimated as to cost, and ingredients used in cooking must be weighed out or measured. The mythical work done in public schools of buying a lot and building a house, of furnishing the same, of organizing a stock company, and of compiling data regarding various lines of local businesses is rather beyond the pupils in our schools but might be undertaken in the higher grades. The school bank as organized in the public schools finds its counterpart in some of our schools and might be more generally adopted. The language requirements of arithmetic are considerable, but it is possible for the skillful teacher to grade the work carefully so as to keep within the range of the pupil's ability. The mere juggling of figures is a waste of time. Arithmetic should center around the problem.

Owing to the general use of the typewriter, motivation of writing has not the importance that was formerly attached to it. It has its importance, though, as the tendency of most children is toward slovenly writing. On special occasions, with the

knowledge that their writing is to be read by others, pupils feel the motive toward extra care and neatness in their work. To secure good consistent daily work, an efficient procedure is to consign slovenly papers to the waste basket. The Thorndike or Ayres scales, by which the pupil himself may measure the quality of his writing, has been found an incentive for more careful penmanship by adults as well as by children.

Little motivation for correct spelling is needed in the case of deaf children. Phonetic sounds do not confuse them, but there is a tendency toward the transposition of letters. Keeping a "minimum" list of mispelled words for the individual pupil will tend to check this tendency. The child who habitually writes *arithemtic* will take pains to spell the word properly and have it removed from his "minimum" list.

Motivation of drawing may be enhanced by making the course practical. Posters may be made for the school and decorative work for the folks at home. Of all the professions, art and sculpture suffer least from the handicap of deafness and are a fruitful field for our talented deaf people, which should be a strong incentive to work along this line by capable deaf pupils.

The motivation of physiology and hygiene, civics, ethics, and other subjects taught in our schools is not discussed in the Wilson book. The resourceful teacher will find a way to interest the pupil in these subjects, following with slight variation methods employed in motivating history, geography, and arithmetic.

The motivation of speech and lip-reading is a subject, of course, not discussed in connection with hearing children, but its importance to the deaf child is very great. It is a most difficult subject to motivate. Where it must be used as a means of communication, whether at home, in the schoolroom, or with friends, necessity is the compelling motive. In a school where signs and finger spelling are employed the difficulty is increased. The tendency is to resort to the easiest method of communication, and even where customary signs are unknown, the inclination to revert to natural gestures is very strong. Impressing upon the pupil the importance of speech and lip-reading and the results which may accrue from their acquisition is an incentive which teachers continually employ. The deaf child knows that there is hope of his using speech and lip-reading as a substitute for the mode of communication common to the rest of humanity, which he may use, if not with the general public, at least with relatives and close friends. Instances of successful deaf men and women who employ speech and lip-reading in their intercourse with the hearing should be continuously cited.

The motivation of manual training, farming, domestic science and home economics is discussed at considerable length by the Wilsons. As schools for the deaf are home schools and are usually well supplied with trades courses as well as land for farming purposes, they are admirably adapted for work of this character. The trades taught vary, but in general it requires but little motivation to get children interested in manual work. Deaf boys like to make things. The constructive habit appeals to them and

they realize that a trades course is a preparation for a future job. Domestic science, cooking, sewing, and housework may not appeal to all the girls, but rightly led on they come to know their worth. Conditions vary in our schools, but in all a judicious mixture of work, which makes it both instructive and productive, is the best appeal to the pupil's desire to do or make something.

School activities as a means of motivating the work of the school receives a full chapter in the book previously mentioned. The school assembly with its varied programme, athletic and social events, school societies, the school paper, etc., are incentives for united motivation of the whole school. In this connection it may be said that too many fads or too many experiments should not be permitted in schools for the deaf. Deaf children have a more difficul road to travel than hearing children. The road to preparation for post-school life is tortuous and full of pitfalls at best. For this reason no impediments should be placed in the pupil's path. With the decks cleared for action, the deaf child can make most progress by dispensing with superfluities. The California School once held to the acquirement of the three R's and a strict obedience to the school rules. During this period, some of the best work ever accomplished by the school resulted. The prominence and accomplishments of the graduates of this time testify to the success of the work of the period.

On the other hand there was a time during which many of the most prominent innovations in educational work were adopted. While these methods had their worth, they seriously hampered the daily routine of a large residential school for deaf chil-

dren, with the result that school work suffered and results fell far below expectations. To motivate work has an important place in our educational system, but it should be cautiously applied in schools for the deaf. Experiments of revolutionary character, when applied to our schools, may be more quickly tested than in hearing schools, but the time of the deaf child is too precious to be experimented with. When motivation can be applied without seriously interfering with established methods, it will have its worth in increased interest, concentration and attention, better discipline, greater efficiency, and more progress in the pupil's advancement within the classroom and elsewhere.

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SUGGESTIONS FROM A CORRESPONDENCE COURSE FOR PARENT-TEACHERS OF DEAF CHILDREN—II[1]

One of the first things that must be accomplished is to determine whether, in the case of a particular child, some of the work can be done through the ear, or whether we must depend entirely upon the senses of sight and touch in performing our educational task.

To what extent, if any, can the child perceive sounds that lie within the range of the speaking voice?

The answer to this question can only be obtained by exercises repeated day after day, patiently, persistently, and pleasantly. On the answer depends the final inclusion or exclusion of certain auricular exercises in connection with the daily work with the child. In the beginning these exercises should be included in every case, and even when it seems wise after a time to discontinue them, they should be renewed at the beginning of a second year of work, and a fresh attempt made to reach the child through the ear.

The law of sound transmission is that the effect produced on the ear by a sound is *inversely pro-*

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[1] These suggestions are presented in the form of a series of excerpts taken from "A Correspondence Course for Parent-Teachers of Little Deaf Children," copyright 1919, all rights of translation reserved, by John Dutton Wright, 1 Mt. Morris Park, New York City.

In a previous installment, the author pointed out some of the more important factors that must be contended with in the early training of a deaf child. Particular emphasis was placed upon (1) the need for special care in the retention of speech, and (2) the importance of preliminary sense training.

portional to the distance between the ear and the source of the sound. This law of nature is interesting to you because it means that a sound uttered with a certain loudness one inch from the child's ear will affect his hearing organ 1296 times as much as the same sound uttered one yard from his ear. If you utter the sound twice as loudly at one inch from his ear as you did before at one yard, you would produce 2592 times as much effect.

This fact also means that you must be careful about making very loud sounds very near the ear, as you may produce dizziness and headache in the child. By carefully observing his face and his actions you can know whether the sounds are so loud, or so near, as to cause him discomfort. Any shrinking away or indication of annoyance, except, of course, impatience or loss of interest, means that the sound is too loud, and you should adopt a softer tone or increase the distance from the ear.

The difficulty in getting accurate information concerning the amount of useful power of sound perception remaining to a little deaf child lies in the task of getting reliable responses from him. It often takes a good many days, sometimes weeks, to be sure that he fully understands what you wish him to do; and even when he understands, you cannot be sure that he will always *choose to respond.* Not infrequently, a child will persistently refuse to respond when he knows perfectly well what you wish, and is perfectly capable of doing it. For this reason, much patience and ingenuity are often required in order to arrive at any reliable conclusion.

In testing him with sounds, do not be deceived by his responding to very shrill, or to powerfully vibrating sounds, such as railroad whistles or a police whistle blown strongly close to him. A child with no usable residuum of hearing may respond to such shrill or strongly vibrant sounds. Do not be deceived, either, by his response to heavy and low sounds such as a base drum or the heavy bass notes of a church organ, or any sound that can be felt with the feet, or by the hands in contact with some piece of furniture, or a door, or window. Such response is likely to be due to the perception of mechanical vibration through a keen tactile sense. Make your tests with sounds not too high, nor too low, and such as are surely conveyed to him by air conduction. The aurist that is consulted will test for bone conduction, that is, for perception of sound by the transmission of vibration through the bones of the head. Where true "bone conduction" does exist, access to the brain by means of sound can sometimes be secured through the aid of a "dentiphone," a sheet of thin, hard rubber, six by eight inches, shaped like a square fan, and held, under slight flexure, against the upper teeth. But even the aurist is sometimes misled in his tests for bone conduction in deaf children by failing to understand the confusion that exists in the deaf child's mind between vibration felt through a tactile sense of vibration, and the true sensation of *sound*. The deaf child often responds to a vibrating tuning fork placed at various points against his head, and says he *hears* it, and is credited with "bone conduction" by the otologist, when as a matter of fact he has simply *felt* the vibratory action of the fork. Not having had any experience with the

true sensation of sound, he very naturally thinks the sensation which the vibrating tuning fork produced was what the doctor meant when he asked if he could "hear" it. He would have made the same reply if the fork had been placed against his breastbone or his kneecap, or even the soles of his feet.

In all your work and play with the deaf child keep constantly in mind the necessity of always watching his eyes, and *not attempting anything unless his gaze is fixed upon you.* If it is a lip-reading exercise, his eyes must be focused on your face, or *your efforts will be wasted.* You must form this habit of watching the child's eyes from the very start. You must remember, also, that the eye cannot see clearly two things at the same time, and if you wish the child to see your lips you must not attract his attention away from your lips by motions of your hands, or keep your head bobbing about so he cannot focus his eyes on one spot. If he is to learn to attach meaning to the movements of your lips, he must *see* the same movements over and over again *when the thought expressed is in his mind.*

You must also keep constantly in mind the fact that you will obtain much more satisfactory results when the work is not work for the little fellow, but happy play. All the exercises should be to him jolly good games that he is playing with you. Unless you can win his interest and desire to do the things, his progress will be much slower. Happiness and enthusiasm are contagious, and if you are happy and enthusiastic about the games, and praise him liberally for every little effort, he will be happy and enthusiastic himself. Do not, however, expect him to be interested and enthusiastic about the same, or

similar things, more than a few minutes at a time. A little child is like a butterfly that flits from one leaf and blossom to another, never staying long in one place or being long interested in one thing. At another time the child will come back to the same play with renewed interest, and, as he is able to play the game more and more successfully, he will be more and more interested. Cultivate a cheerful face and a joyous manner in your dealings with the child, even when inwardly you may not be feeling particularly cheerful or joyous. Never hammer persistently at one thing with him till his nerves, and yours, are on edge. Drop it and take up something different, returning to the former problem another time, or another day.

The development of the comprehension and use of language by the deaf child must follow the same order as in the case of the hearing child. He must first learn that things and actions have names and he must be led to associate some lip movements with those names. In the case of a hearing child these impressions are sound sensations; in the case of the profoundly deaf child they must be principally speech movements that can be seen, though his sense of touch will also be called upon to help him. As the hearing baby learns to associate the idea of his mother's personality with a group of sound sensations which compose the word "mama," exactly so must the totally deaf baby learn to associate his thought of his mother with the sight sensations produced by seeing the lips and face of a speaker when uttering the word "mama." Naturally, the first word that a hearing baby learns to associate with an idea is usually "mama," or "baby," or his

own name.[2] Precisely so the deaf baby, if properly dealt with, will first learn to lip-read one of those words when spoken by those who have the constant care of him. The age at which he first learns to associate a sequence of facial movements with a word as the name of some object, person, or action, will depend upon the number of *properly directed* efforts that have been made to assist him to get the idea. In the case of the hearing child the efforts of his mother and friends do not need to be "directed." It is instinctive on the part of everyone to talk to the baby, and the baby's brain receives the sound impressions unavoidably and without conscious effort. The profoundly deaf baby's brain, on the other hand, receives no impressions from speech if his eyes do not chance to be focused on the lips of the speaker at the moment of the utterance. But unless very watchful attention is paid to his gaze by those speaking to him, his eyes will not *chance* to be focused on the lips of the speaker *when the idea expressed is in his mind,* and it is by repeatedly and constantly hearing the words, when the idea is in his mind, that the hearing baby comes gradually to associate those sequences of sound with the ideas which they have arbitrarily been chosen to represent. Unless the deaf baby's eyes perceive the sequences of *movement* that accompany those words as many times when the idea that they express is in his mind, he will not learn to associate those lip movements with those ideas as name words.

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[2] Unfortunately, the words *mama* and *baby* look very similar on the lips when no sound is heard. It would be better, therefore, for our purpose if the words *mother* and *baby,* or *mama* and the little one's name were used, unless it happened to be *Bobby* or something else that looks like *baby and mama.*

The initial problem is, then, to devise ways by which the deaf baby *will* see and perceive those lip movements *when he is thinking of the thing or act that they name,* as many times as the hearing baby hears them, or even more often, if possible.

Inasmuch as spoken language has been created with reference to the ear, it is better adapted to comprehension by ear than by eye. In fact, it is very poorly adapted to perception by eye, and it is a really extraordinary thing that the impressions of speech sent to the brain by the eye can be translated into ideas clothed in language forms. For this reason the deaf baby, who must depend upon an unintended and imperfect means of receiving spoken language, ought, in all fairness, to have *more practice* in connecting lip movements with ideas in language form than the hearing baby gets in connecting the ideas with sound impressions. It is just here that the extreme difficulty of the task comes, and even the approximate accomplishment of this requires unremitting attention and vigilance, as well as patience and affection on the part of those having the care of the child. But even if the mother and others about the baby have these qualities of patience, vigilance, and affection, they will avail but little unless their efforts are *intelligently directed.* The object of this preliminary discussion is to make clear the reasons for the course of training that the deaf child must receive in order that he may gain his rightful heritage of oral intercourse with his fellow beings.

How, then, can we conduct our intercourse with the deaf baby so that his brain will receive the required impression with the required frequency and at the required time? The first step is for

those who have the care of the baby to train themselves rigorously to watch *the baby's eyes,* and to seize every instant when his gaze is upon their faces to say some word to him that the circumstances at the moment indicate may very possibly be in his mind, as for example, mama, sister, brother, father,—if he is looking at one of them,—baby, the baby's name, doggy, pussy, laugh, cry, hungry, sleepy, happy, up, down, yes, no, all right, see brother, see doggy, see pussy play, baby fell, baby laughed, mama loves Jack, father loves Jack, sister fell, brother came, breakfast time, dinner time, supper time, come to mama, go to brother, etc., etc., all day long, *but repeating the same words and phrases day after day and week after week.*[3] Breath and effort are wasted when he is not looking at the speaker.

Not only should those in charge of the baby train themselves always to watch his eyes, and to speak to him when he is looking, but they should also cultivate the habit of attracting his attention, and then speaking to him. Gradually, and unconsciously, he will learn to fix his gaze on the speaker's lips, and little by little, just as the hearing baby slowly begins to comprehend the meaning of the words he has heard so many times, so the deaf baby will begin to comprehend the words whose lip movements he has seen so often. This procedure should begin at once, as soon as there is any suspicion that the baby's hearing is

[3] If *mama* has been used as the name word for his mother, then *father* should be used and not *papa,* since the words *mama* and *papa* look alike upon the lips. If *mother* is the customary word used for his mother, then either *papa* or *father* can be used without confusion.

even in the slightest degree below normal, no matter how young, or how old he may be. It is the initial step that must precede all others.

Before we take up the first lip-reading exercise, we must impress very strongly upon you the absolute necessity of *natural speech* free from mouthing and exaggerations in all your communications with the child. There is a tendency on the part of everyone when speaking with a deaf lip-reader to open the mouth as much as possible, flap the tongue up and down, and make all sorts of facial contortions in an effort to render speech very plain and more easily understood. This is not only unnecessary, it is fatal to the accomplishment of your purpose, which is to enable the child to understand the ordinary speech of the people he must live with. You wish him to learn to understand people when they talk to him as they talk to other people. You do not want to make outlandish signs to him with your mouth and tongue. If he is going to learn to understand the ordinary speech of people he must have constant practice in seeing natural speech when he is thinking about the same thing that the speech is about. If he sees only mouthing and facial contortions and tongue twistings and lollings he will learn to understand those and nothing else, which is not what you wish. Therefore, speak to him exactly as you would to any other child, except that you should speak a little more slowly. By that I do not mean that you should *drawl* your words out to unnatural lengths, but only that the words should follow each other a little less quickly, and that there should be a little more pause between the phrases and sentences. For example, if you are saying, "Jack, take off your hat," do not say

Ja-a-a-c-k ta-a-a-ke o-o-off y-oo-ur ha-a-at, but say "Jack—take off—your—hat." The "take off" is one word to the child. Do not speak in single words, detached from each other, where you would use a short phrase or sentence in speaking to a hearing baby. Use very simple direct language, but correct and *natural* forms. Do not say "Baby cry no," "Baby eat supper-good," etc., but "Baby didn't cry," "Baby had a good supper," etc. Baby talk and incorrect English addressed to any child is foolish and harmful, but in the case of a deaf child it is a calamity. This slightly delayed sequence of the words, and a little more emphasis on the important, or "key" word of the sentence, is the only difference that should be made, though you must always keep in mind the fact that when he is not looking at you it is a waste of breath to talk to him.

You must also remember that our eyes can see clearly only one thing at a time. If you want your child to see as well as possible the position and movements of your lips, teeth, and tongue while speaking, you must not divert his gaze to your hands by motioning, or pointing, or waving them about. You must also keep quiet when speaking to him, and not walk about, or bob your head, or move it from side to side. It is very hard to keep changing the focus of the eyes, and to see clearly an object that is moving. So keep your head and hands and body still when you are talking to him, or else he will not get the full benefit of the lip-reading practice, and will not learn so fast as he would otherwise.. *Never* try to talk to him while you are rocking in a rocking chair.

Be thoughtful, also, of the light. He cannot see your face well unless a good strong light falls upon it *from behind him.* If the light shines in his face from behind you, he cannot see your face well enough to read your lips. Try it yourself and you will observe the trouble you are in when you try to see clearly some object between you and the light. The care which should be given to the sight of any child should be given even more to the deaf child, who must make his eyes play the double part of ears and eyes. Do not let him lie or sleep with the sun shining in his eyes. Do not let him use his eyes for concentrated seeing when the light is dim or coming from the wrong direction. As he grows older, teach him to be watchful against these things himself.

JOHN DUTTON WRIGHT,
Principal of the Wright Oral School,
New York City.

[To Be Concluded]

REMINISCENCES[1]

I have always been sorry that I did not keep a Journal during my first years of teaching the deaf or that I did not at least record some of my impressions of the people who were in the work at that time.

I began teaching while most of the early teachers and superintendents were still living and some of them actively engaged in the work.

Dr. Harvey Peet had handed over his burden as superintendent of the New York Institution to his son, Isaac Lewis Peet, who had a historical career as head of the school; Dr. Wilkinson was at the height of his efficiency as superintendent of the California School; Mr. Willard, the founder of the Indiana School, was still living near the scene of his early labors; Dr. Gillett had taken charge of the Illinois School and had brought it to a high standard of efficiency; Dr. Noyes, of Minnesota, was laying the foundation of his noble institution.

I well remember the first time I had the pleasure of meeting Dr. Harvey Peet. His remark as we were introduced was "Young man, the two extremes have met, for from your appearance I assume that you are the youngest hearing teacher in the work, and I am the oldest."

Dr. Gillett's father was living in Indianapolis at the period of which I write. The Doctor used to stop off to see him on his journeys through the state and he often came to visit the scenes of his early labors and greet his old associates. He was a great

[1]A paper read before a Teachers' Meeting of the Western Pennsylvania Institution, October 4, 1921.

traveler and had passed over almost all of the railroads in the country. In those days passes were easily secured by men of influence and he had in his possession a greater number than all the other superintendents in the United States combined.

Dr. Wilkinson and his wife once spent a day with Dr. MacIntire in the Indiana School and I had the good fortune to see much of them. Mrs. Wilkinson seemed to me to be the most entertaining woman I had ever met. She was a brilliant talker and had had a varied experience in life. It was in the days that preceded the period of the building of the transcontinental railroads and she had several times made the trip from California to New York by boat, breaking the journey at the Isthmus of Panama.

Mr. Wilkinson was also interesting, though most of his conversation was on institution affairs. I remember that he stated that his Board of Trustees had voted him the sum of fifteen hundred dollars with which to make his trip east to visit other schools.

Mr. Jacobs, of Kentucky, a son of the founder of the state school at Danville, spent a day or more at the Indiana School while I was there and we were greatly pleased with him. As he afterwards dropped out of the work, I lost sight of him, but he left a very pleasant impression on all the people whom he met.

Mr. Joseph C. Gordon began his career of teaching the deaf in the Indiana School soon after I went there and we were on the most intimate terms possible from then until the date of his death, which occurred while he was superintendent of the Illinois institution. He was an able man and would have occupied a high place in his profession had he been spared a few years longer.

I well remember a visit of Mr. G. O. Fay to the Indiana School. He was talking to Mr. Valentine, then a teacher in that school, one morning in the library when I entered the room. Pretending to be deaf he began to talk to me in the sign language and Mr. Valentine insisted that I knew him, whereupon he resumed his speech and revealed his identity.

Dr. Gallaudet was somewhat younger than the other men I have mentioned, though he, too, had had a long career as president of the college and school at Washington. He began teaching when he was nineteen years old, I think, at Hartford in the school established by his father in 1817. After the college was established in Washington, D. C., by Amos Kendall, Dr. Gallaudet, though still young, was called to take charge of it. He had a long and honorable career as head of the college. Afterwards he named the college Gallaudet College in honor of his father, who really introduced the teaching of the deaf in this country, though there had been a little pioneer work done a few years earlier in Virginia.

Mr. Connor, of Georgia, also belonged to a later date, though not many years, for he was called upon to organize the Georgia institution at the close of the Civil War in 1865. He died only a few years ago at an advanced age.

Dr. Clark was a well-known figure in deaf-mute circles for many years, first as superintendent of the Arkansas Institute and afterwards as superintendent of the Michigan School. He had once been recommended as superintendent of the Western Pennsylvania Institution, but it was soon after the close of the Civil War and there was some objection raised to employing a man from the south, though his youth was the deciding factor in passing him by.

This is a very inadequate presentation of superintendents of schools for the deaf, for it includes only those whom I met. There were many others equally worthy of note, but it was not my good fortune to know them.

On my way to New York to sail to Europe to study the schools there in the summer of 1870, I stopped in New York at the request of Dr. Isaac Lewis Peet for a number of letters of introduction to the heads of schools in Europe. Both he and his father had visited most of the schools in Great Britain and the continent and while I did not need the letters to secure friendly receptions, yet everywhere I went it was a great satisfaction to find the high esteem in which they and our other instructors were held by their European brothers. They envied the liberality of the public that was extended to the schools for the deaf in the "States." The schools in Europe had grown in importance just before the war and were better supported, but during the war and since they have been greatly handicapped for lack of funds. The education of all classes lost in support and in some places schools were closed while the war lasted. In the early years of deaf-mute instruction there was a great social gulf in Europe between the teachers and the heads of the schools in the eyes of the public. Possibly it exists to some extent to this day.

Now there is a tendency toward the multiplication of day-schools for the deaf. It has some points to recommend it but on the whole it is detrimental to the deaf. Every parent likes to have his children at home, especially in the early years of their life, and consents to sending them to school at a distance

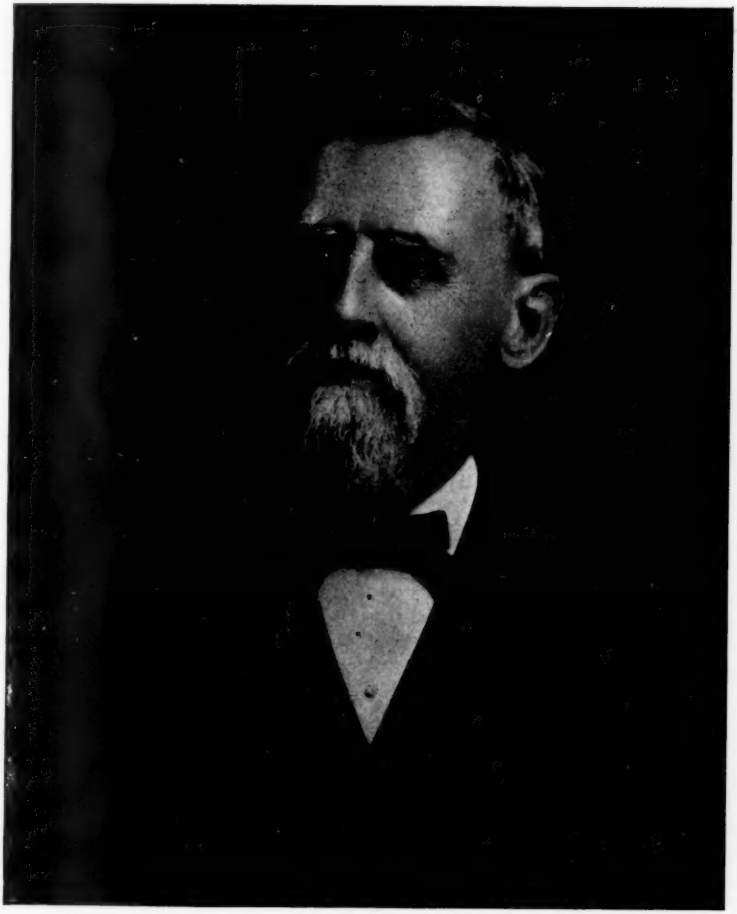
very reluctantly, yet they can be better educated in a large school where closer supervision is exercised over their instruction than in a small day-school where their teaching is not supervised. Then, too, in the case of boys, they are taught a trade and habits of industry. Here a trait in human nature shows itself. When a family is relieved of the care of a deaf child for a time, especially if it is a boy, the parents come to a realizing sense of the care they have been exercising. The mother gives almost six to eight years of her life to the deaf child which is really a heavy burden for her to bear, and when once relieved of it for nine or ten months, she feels it when the child returns home at the close of school. It is not fair to the other children in the family to have her time monopolized by the deaf child, so it is best for the parents and the other children that the deaf child should be sent to school away from home, to say nothing of the better chance it will have for an education.

The early schools admitted young men and women, for many of the deaf were grown before an institution for their education was established in their state and though they might have been too old to acquire an education they were able to get some little knowledge of written language and a great deal of general knowledge by means of the sign language. In those days nothing was known of the oral method of teaching in this country and a great deal of attention was paid to the sign language, especially in starting a young teacher on his course, for not only were signs taught but the origin or derivation of the signs explained. With the coming of the oral method less attention was paid to signs. While they are universally used

by the deaf they are not taught in schools, but children pick them up from seeing others use them. Thus they are handed on without great modification from one generation of the deaf to another and are used in most schools by the pupils on the playground as well as in conversation in their leisure time out of school, and as far as human foresight can penetrate they always will be used, for they form the natural language of the deaf and it is by means of them, on the part of the young at least, that they give expression to their thoughts and feelings.

There is no doubt that the present generation of teachers, superintendents, and officers are as devoted and efficient as the preceding generation, for they have the experience of those gone before as recorded in the literature of the profession to guide them, but the proportion of men in the work grows less and less all the time and will continue to do so as long as the salaries paid are so inadequate. The tendency just now is upward, and if it continues it will call into the ranks of the profession a number of men that are greatly needed.

When I began teaching there were several institutions that had in their corps at least as many men as women teachers, while now they number less than one-fourth as many, though now we have a larger proportion than just before the recent war. The oral method of teaching is gradually closing the doors of the profession against the deaf as teachers, much to the loss of the calling, for there were in the times now past many able deaf men as well as women in the ranks as teachers. Now there are too many women who gain temporary footing in the work while waiting for the right man to come along to



WILLIAM NATHANIEL BURT
1846—1921

lead them to the matrimonial altar. Fewer deaf lady teachers marry than hearing ones, at least it seems so, though when the men do marry they are apt to marry teachers.

The deaf pupils in any schoolroom are very interesting, though possibly they only seem so to most teachers. One of the snags one has to guard against in a teachers' meeting is a discussion of any particular child, for when once begun it opens a floodgate of conversation. Each teacher seemingly has some pupil in her class who has an interesting personality or who interests her by his peculiarities. It may be that it is because the classes are small and she becomes more intimately acquainted with them and thus notes them more minutely, or it may be that she secures their confidence more readily than teachers of hearing children do. Children who live at home carry their troubles to their mothers or sisters for advice, while deaf children, living away from home most of the time, confide their perplexities to their teacher, especially if she is sympathetic and takes an interest in their every-day lives.

WILLIAM N. BURT,
Late Superintendent, Western Pennsylvania Institution.

WILLIAM NATHANIEL BURT

At noon, October 17, 1921, William Nathaniel Burt, Superintendent of this, the Western Pennsylvania Institution for the Instruction of the Deaf and Dumb, quietly passed into the eternal peace of his reward. So unostentatiously had he lived and performed the multitudinous duties of his office and so quietly had he passed that it was, for a time, hard to realize that he had left us for all time. It seemed more as though he had slipped away on one of his periodical visits to other schools for study and would return to us in a few days, for this he had often done in his usual quiet way before.

He gave of his strength—of his life—so unobtrusively that few felt the great value of the work he did among us; no friction, no excitement was ever apparent. Soon, however, a flood of realization overwhelmed us with the revelation that our leader and friend had indeed departed. It was then that sadness hung, as a foreboding cloud, over the school.

For a few months over thirty-two years, Dr. Burt had guided the destinies of the institution and cared for those in his charge as would a father over the affairs of his household. Every part of the school machinery glided so evenly that the hand which controlled it all was lost sight of in the smoothness of the running operations, as one on a railway train travels in comfort and security without a thought of the hand at the throttle and the great responsibility resting thereon. Dr. Burt himself was wont to say in his usual calm, unimpassioned tone that it was the way of human nature to take life and the daily routine as a matter of course, and it is only when a

sudden interruption brings us face to face with our limitations that we give thought to the hand that orders the even procession of events.

From the time he took charge of a class of beginners, some of whom were older than himself, in 1867 at the Indiana Institution for the Deaf and Dumb, then under the guidance of one of the most sympathetic and successful educators of the deaf, Dr. Thomas MacIntire (Dr. MacIntire was for over two years superintendent of this institution four or five years previous to Dr. Burt's tenure), he was a close student of child-culture. He analyzed the development of the normal child and applied the knowledge thus obtained to the teaching of the deaf. He began at the bottom of the profession and worked to the top, mastering all the gradations between. We believe there are few, if any, who had a more comprehensive understanding of the deaf mind than had our late superintendent.

Dr. Burt was born in the town of Vernon, Jennings County, Indiana, on the 27th of January, 1846. Referring to the place of his birth he felicitously remarks, "It has not profitted much by the distinguished honor thrust upon it for it has been slowly shriveling up until now it contains only half the population the census formerly placed to its credit." Nevertheless, Dr. Burt was reared and educated in all the simplicity of village and country life, yet withal in an environment of culture and refinement which had a substantial influence upon his after life.

Dr. Burt's father was a prominent physician, a practitioner of wide experience in that part of Indiana, and gave his children all the advantages of education that were possible at the time. During those

carefree boyhood days, according to his own account, he enjoyed to the fullest the small boy's idea of "perpetual bliss, i. e., plenty to eat, plenty to see, and excitement on all sides,"—which suggests he was thoroughly a normal boy.

Dr. Burt was graduated from Hanover College (Indiana) in the summer of 1867 and then experienced all the difficulties of deciding upon a career. In the absence of any well defined preference as to a vocation, he was inclined slightly to the study of medicine and began looking for a situation that would favor that inclination. Then in the midst of his perplexities he received a cordial invitation to take a position as teacher of the deaf from Dr. Thomas MacIntire, superintendent of the Indiana school for the deaf. The receipt of this call was a great surprise to the young man who had never given the profession of teaching a moment's thought, much less that of teaching the deaf and dumb, although his father, Dr. James C. Burt, had been for several years an honored trustee of the institution over which Dr. MacIntire presided. Correspondence followed and the upshot of the matter was his acceptance of a position in the school, subject to a three months' probation to satisfy himself of his inclination toward such a responsible charge. The three months passed and he consented to extend the trial through that school year. At the end of the year his mind was racked by doubts of his fitness and ability to make good. He was too honest by nature and education to desire continuance in a work which he recognized as sacred unless he could visualize his fitness for it.

Here again he deferred to the mature judgment and advice of his friend, the superintendent, and it was decided after calm and unselfish deliberation that he should continue in the profession, and having so deliberately determined there was no turning back. From that time forward all his energies were directed toward the one object of making his life-work worth while.

The conscientiousness of his nature made it incumbent upon him to go to the root of every problem that confronted him in his chosen vocation. The first few years of work at the Indiana Institution were spent in an atmosphere of culture and educational activity. He had as his associates, besides Dr. MacIntire, such men as H. S. Gillett, W. H. Latham, J. C. Gordon, W. A. Caldwell, Noble McKee, and others, all college-bred men and all of whom rose to distinction in the profession. Added to this advantage his study in the school of experience fitted him admirably for the service which later devolved upon him.

When politics invaded the institution, and the superintendent was removed from his office, a novice being installed in his stead, Dr. Burt was chosen as principal to maintain the high standard of the educational system of the school. Others left to go to more congenial environment, but Dr. Burt felt it was his duty to remain, however distasteful the political background. Twenty-two years was the span of his service at the institution, twenty-two years of strenuous endeavor preparing himself for whatever the future might offer, doing his whole duty from day to day to the best of his ability without thought

of personal preferment, a well-rounded experience which fitted him for his duties on a still higher plane.

The Western Pennsylvania Institution was yet in the formative period when Dr. Burt accepted the superintendency in 1889. There was much to be done to bring it up to a higher state of efficiency. Reorganization was necessary in all departments. With admirable tact and fine judgment he met every difficulty successfully, and from that time throughout the thirty-two years of his administration, growth and development were continuous and steady. It is needless to go into all the details of the conditions that confronted him. Suffice it to say that he met every issue squarely and efficiently.

It is hard for the average individual to comprehend the multitudinous items that necessarily demand the attention of the superintendent of a large institution like ours. Yet until within the past two or three years, Dr. Burt had attended to all the details seemingly without effort. He believed in the gospel of work but relegated that work to regular hours; when the day's work was done he forgot it completely. He took his rest as regularly as his work and so acquired strength for each succeeding day of toil.

From its inception the institution was fortunate in having experienced and competent executives. The incumbency of four superintendents covers the first thirteen years—each serving a short term of from two to four years. Dr. Burt's tenure of the office was nearly a third of a century. Hence it will be seen that Dr. Burt had the opportunity of shaping the policy and programme of the school, so whatever of success or achievement has been accomplished is

due more to him than to any other person. His administration was marked by substantial progress in every department. He vitalized whatever promised to be of especial advantage to the pupils or that would make them self-reliant, progressive citizens after leaving the fostering care of the school. He studied the needs of the school for the benefit of the boys and girls intrusted to his care.

Nearly all the buildings now on the grounds were erected during his incumbency and the adaptability to their requirements was largely due to his comprehensive recommendations. The main building, which took the place of the one destroyed by fire in December, 1899, is practically fireproof, removing the fear of a reappearance of the fire demon.

Dr. Burt was a lover of nature, and the barren field in which the buildings were situated was soon transformed into bowers of beauty, the pride of the neighborhood.

Vocational training was one of the elements in the education of the deaf nearest his heart and he extended these facilities insofar as financial support permitted. He found shoemaking and carpentry already established though not greatly developed when he came. Printing, painting, and paper-hanging were soon added. His attention was then turned toward the girls. "Why should they not have opportunity to prepare themselves for the duties that would be theirs in after life as the boys should be provided with shops in which to learn the trades?" he asked. So convincingly did he advocate the establishment of a domestic-science department for the girls that it was soon an accomplished fact, perhaps the first of its kind in all our institutions.

The destruction of the main building by fire on December 14, 1899, was a calamity that well nigh broke the heart of the superintendent. The safety of the 230 pupils, their care until they could be sent home, then all the work of reorganization, erection of temporary buildings, rearranging and refurnishing the old building for schoolrooms, and recalling of the pupils to school—all within the space of three months—revealed wonderful powers of endurance as well as of executive ability under the most adverse circumstances.

Dr. Burt lost all his personal and household belongings in the fire, saving only the clothes he had on his back at the time, but the only comment we ever heard from him concerning the disaster was that he was profoundly thankful the fire occurred, as it did, during the day. The thought of the pupils was ever uppermost in his mind, their safety and comfort.

The transition from a manual to that of an oral school was one of the landmarks in Dr. Burt's administration. When it became necessary to make the change, he went about it as if it were the most natural thing in the world although there were reasons to think, at the time, that he did not approve of the change. Judged by the way he proceeded with the task one could only believe his whole heart was in the work. In all that he undertook, he aimed at the best. It was no holiday task but required years of patient thought and planning to accomplish. This illustrates, in part, Dr. Burt's persistence whenever anything of importance engaged his attention.

Dr. Burt was not only an educator of fine qualities but a first-class executive and business man as well. He could visualize business details accurately and

without hesitancy. He had the entire confidence of the Board of Trustees, itself composed of prominent and successful business men, in upholding the tradition of the institution, that of efficiency and economy in all business affairs. He detested anything that hinted of "shady dealing" or untruthfulness and deceit.

Dr. Burt was appointed by court on the Edgewood School Board and was afterward elected to that position by the franchise of the borough continuously for a number of years. He served as its president. He also was appointed a member of the Board of Health, serving as its president for many years. Hence we see he took his full share of responsibilities in public affairs.

The business men of Edgewood and Wilkinsburg recognized his business acumen and sought his advice. In fact his abilities, educationally and in affairs in general, were so well understood in the two boroughs, that when he "passed on" the flags on all public schools were displayed at half mast.

Dr. Burt possessed that degree of self-consciousness that enabled him to serve the institution to the best advantage. He possessed an analytical mind and did his own thinking; his mind once made up, there was no swerving from the ultimate object. The course mapped out was never changed save under the compulsion of absolute necessity. He was not infallible, to be sure, nor did he ever claim any extraordinary superiority but he did aim at being as near perfection as it was possible for human powers to be. He may even have built air castles, but if so he put foundations under them, for we fail to find anything visionary about him. Never pushing—

never demonstrative, yet there was something in his nature that compelled attention. This characteristic was well illustrated at conventions which he attended. He was an humble listener like the rest of us, not a platform ornament, but his advice and opinions were sought by those in authority and leadership.

Dr. Burt was quick to take advantage of every trend that promised especial advantage to the boys and girls intrusted to his care. He encouraged whatever tended to strengthen character or that would make self-reliant, progressive citizens when the time came for them to leave school and begin the battles of life. He believed in cultivating the social side of the citizen. On this fundamental realism he has said, "No one can live to himself. A deaf person lives an isolated life from the very nature of his infirmity; still he ought to take his place in society and hold frequent intercourse with those about him and be interested in the things that interest his fellow citizens. His education should fit him for citizenship. To that end he should be taught the elementary facts of civil government. He should be interested in party politics and be informed concerning the current topics of the day, and then he should have moral and religious training that he may live a clean, upright, and honest life. The responsibility of fitting the child for the place he should occupy in society rests to a great extent upon the teachers and officers of our institutions." He thus reasoned for the uplift and proficiency of those passing through his hands to the possessions beyond.

"The happiest man and the greatest man is the one with the broadest sympathies." Dr. Burt possessed sympathies broad enough to include the stranger and the most humble as well as the friend and the favored. He felt sympathy and showed sympathy, but seldom put sympathy into words. This trait may, in some measure, explain that indefinable something that drew people to him and made them feel he was their friend. Though quiet and unobtrusive there existed no exclusiveness. His sympathies did not interfere with his estimate of the man, however, as witness: "Men and pins are useless when they lose their heads" was an idea provoked when a trusted employee lost his head in a grave emergency.

Institution life is peculiar to a great extent, "full of chords and discords." The medium for preserving harmony is the superintendent. He must listen with an ever patient ear to the trials of the teacher, the happiness or unhappiness of the pupils, and the vexations of the employees. He must smooth away all difficulties, praise or condemn wherever necessary. There are moments when all the faculties of a trained mind and an intelligent discrimination must be exercised. Dr. Burt possessed this efficiency to a marked extent. He was master of a delicate high-grade mental machine, calculated to carry on high-grade work, efficient in any emergency.

At the last teachers' meeting over which he presided, October 4, Dr. Burt read a very interesting paper, reminiscent of a number of the giants in the cause of the education of the deaf whom he had known intimately in former years, and who had passed on to join the "innumerable caravan." He

spoke of them reverently as those who had left their stamp on the lives of a host of the deaf and as though he were in communion with the spirit of their labors on earth and on whom he was permitted to lean in his younger days. He spoke in his usual happy vein at the time and little did we think that in less than a fortnight he too would be numbered with the friends who had gone to their final reward.

It was well. He died as he would wish—in harness, and without a lingering dissolution of his mental and physical powers.

Dr. Burt was happy in having his devoted wife and all his children with him to the last. His daughter, Mrs. Elizabeth Mellor, and youngest son, William N. Burt, jr., live in Edgewood where he could exchange visits with them daily. His son, Dr. James C. Burt, is a prominent physician of Pittsburgh and is a member of the Board of Trustees of the institution.

Dr. Burt has left some very interesting notes on a variety of subjects of public interest. These he called "Random Thoughts" and "The purpose of these notes is to afford me pleasure in writing them." He made no claim to originality nor to profundity, but simply set down from time to time the thoughts that came to mind when he had the inclination to write.

Among the subjects he treated in this modest way we may mention:

Prohibition, Culture, The Sex Problem, Religion, Traditions, Language Study, The German Language in our Schools, Provincialism, On Growing Old, Government, The War, and Charities and Correction.

All these subjects are treated in a masterly manner and reveal the depth of thought back of the modest exterior. His "Thoughts" transferred to the written page are worth perusal in entirety and in detail but we must content ourselves with but a few brief extracts here.

"Culture is not the possession of knowledge alone. A man may be a walking encyclopedia and not be cultured. It must be associated with delicacy of feeling and genuine sympathy, though of course wide knowledge cannot be absent. One may not be able to define it accurately yet he cannot fail to recognize it. He must be gifted at birth with intelligence and refinement and to this must be added opportunity to develop his natural powers along right lines. Extensive travel and wide acquaintance with men are indisputable, but above all it is a state of mind."

"Various factors unite to make our form of government weak and inefficient. The strongest are the lack of intelligence of a part of our citizens and the lack of moral fiber in their make-up. They are not fit to exercise the right of franchise. They are morally and mentally incapable of governing themselves. They fall an easy prey to the designing politician who, while honest in most things, is utterly unscrupulous in the game of politics."

One day while "keeping office" he wrote:

"To-day the thought came to me that people generally have few fixed opinions. They reason loosely on most subjects, for few subjects interest them more than superficially. They are apt to inherit their religion and their politics and are confirmed in the one by the partisan papers and in the other by their church associations. In other mat-

ters they take their opinions from the sentiment of the community in which they live or from self interest. Very few are capable of profound convictions and perhaps they are better off without them for profound conviction without enlightened thought is apt to be little more than obstinacy. After all, of what use are profound convictions except on questions of right and wrong. If deep conviction could exist with the spirit of toleration, no harm could be done, for this is the antidote, but unfortunately it seldom does."

GEORGE M. TEEGARDEN,
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THE PLACE THAT HAND TRAINING PLAYS IN THE EDUCATION OF THE DEAF[1]

The value of hand training for the deaf can not be estimated, nor do we appreciate its importance unless the work is followed from the first grade through to the high school.

Our pupils are cut off from much that hearing children get without effort, and it must be made up to them in some way or they will go through life deprived of their just rights.

Training the hand and eye means more than training for the particular work the child may be doing in the classroom. It means acquiring the habit for anything that may present itself later on. It makes for efficiency in all kinds of work.

Drawing is acknowledged by all art educators to be the most important part of hand and eye training. Ex-President Eliot in a lecture to the students of the Technical High School of Philadelphia said: "The experience of the world shows that human progress upward from savagery to civilization has been promoted, not through book work nor through committing things to memory, but through the training of the senses, as applied to arts and trades. And the reason why *drawing* is so much to be preferred to most other studies in school or college, is that in drawing you get an admirable training of the two most important organs of sense, the hand and the eye; and in getting this training you get entrance to some of the greatest enjoyments of life as well as to the greatest utilities of after life."

[1] Read before a meeting of the teachers of the Wisconsin School, Delavan, Wisconsin, May 4, 1921.

Henry Turner Bailey, editor of *School Arts,* says: "Draw and the child draws with you; talk and you talk alone."

The following are some of the reasons given for instruction in drawing and handicraft.

To help children to see things clearly and use their hands skilfully.

To give another language in which to express ideas.

To develop the power to appreciate a piece of fine work and ability to discriminate between good and bad design.

To cultivate the power of invention.

To cultivate *forethought,* in planning a piece of work before starting; *concentration,* in constant effort to do good work; *self-reliance,* in confidence and courage to do the work planned; *persistence,* in sticking to the work until finished.

The natural form of expression for both hearing and deaf children in the first grade is drawing. The double advantage to the deaf can readily be seen; and for this very reason they are going to make a more practical use of it, and should have every advantage along this line.

Children think naturally in symbols and all drawing is symbolic. They draw what is in their minds, not what they see. They have very little power to study form closely, but are satisfied with their own conception of it. The little figures they draw have all the features plainly visible, in the back as well as in the front view. This is not the time to criticize drawing, it is their ideas we want. They must be encouraged to be original or they will become mere machines in hand work later on.

Busy work with these little first-year pupils plays a very important part in the hand training. It serves the double purpose of amusement and education. When these little folks come to the art room for their first lessons, those who have had plenty of busy work are well on their way to become little artists. Their hands have been trained in the use of pencil, brush, and scissors, and they are ready to do neat work.

A little later on they begin to see form and are not satisfied with their crude drawings; this is where the real teaching of drawing begins. They love to draw the common objects they see about them every day. With our children this kind of drawing plays a most important part in helping to fix the name of the object in their minds. We make this object drawing an essential part of our work. They draw everything we use in the studio. We have frequent tests of memory drawing, from names written on the wall slate. This sharpens their eyes and memories and stores up a drawing knowledge which will always be useful to them.

We draw utensils from the domestic-science department and tools from the carpenter shop, putting the result into booklets which involves the problem of constructing, measuring, making a suitable cover design, lettering and spacing properly. These are invaluable to them for reference purposes.

Drawing is the best method of cultivating both hand and eye to accuracy and to expression. It is another language and has many advantages over

ordinary speech. It should teach children to see and in consequence to enjoy more the things about them.

Children who are mentally deficient often succeed with art and industrial work. Not being able to do the required work in the grades, they become discouraged. In the drawing class they often do better work than the brighter ones. This brings encouragement and real happiness, and it is only when we are happy that we do our best work. They should be given a chance which will lead to really worth-while work. In this manner they may be able to earn a good living.

In the fifth and sixth grades they begin to demand more advanced work and are proud to be given difficult problems, something that requires thought and accuracy.

All through the grades they are taught the use of the ruler and almost unconsciously they learn to measure correctly.

In the seventh and eighth grades the children are ready to construct many useful things, but the teacher should always bear in mind whether the article can really be used, either by the pupils themselves or in the home. It is useless to make as a class problem a card case for mothers who have never made a call, or some fancy article that would only be in the way.

The ninth and tenth grades should be ready to do individual work, each choosing the article he wishes to make.

Correlation plays a very important part. This has necessarily been somewhat neglected the past

two years in our cramped quarters, there being no place for unfinished work or space enough to do perspective drawing.

Every once in a while the question is asked, "Don't you think art is more important than manual training?" or vice versa. Such a question is of the same importance as if it were, "Don't you think the right eye is more important than the left?" or "Don't you think that water is more vital to the human race than food?" Why discuss the importance of one or the other? Both are needed to complete the whole. Remove art from handicraft, and you have ugly workmanship. Remove workmanship from art, and you have useless application.

To carry out correlation successfully an outline of work being done in the literary department should be in the hands of the art teacher each week. From this outline, illustrations can be made in suitable booklets in which the lesson story may be written. For instance, a class may be studying about the Eskimo or Indian. We have put together neat little books with appropriate cover designs in which drawings were made of the people, their mode of living, and other characteristics. We also construct from paper, or other suitable material, wigwams, canoes, head-dresses, etc. A story told orally fades from the mind, but a picture remains. Drawings from these lessons will help pupils to set down clearly and usefully records which can not be described in words.

The teaching of art is a high profession of great importance, says Walter Crane, but it is so only when the necessary steps of the daily lesson are connected with the purpose of it all.

Correlation with the domestic-science department may be accomplished in various ways, such as by illustrating the cook book, heading each section with a suggestive design; by making designs for dress ornamentation, and articles used in the home; and by teaching harmony of color and fitness of design. For example, the design for a sofa pillow should look equally well no matter which side up the pillow may be, not a figure to be left standing on its head if the pillow happens to be disarranged.

We aim to give the pupils incentives to higher ideals in the home life; to teach such a love for harmony in color and arrangement that the inartistic and ugly shall find no place. Only by constantly insisting on harmony of color and by teaching the *why*, can this be accomplished.

The result of this training is occasionally shown when a new pupil comes into the class and startles us by using all the fighting colors in one design. His lack of good taste is promptly pointed out by some fellow-pupil.

With the shops, we draw designs for various articles which they send to us when ready for the decorations.

The printing office prepares mottoes, Christmas and Easter cards which we decorate. Our drawings have been reproduced in the *Wisconsin Times* and prints made from book plates we have etched.

We try to impress upon the pupils that common things may be changed by tasteful skill into objects of beauty. Close at hand always and everywhere lies the raw material for the finest art. "There is nothing aristocratic about art that needs to be

enshrined in gold and red plush. There is no mystery about it that common folks can not understand." It is for *all* to *use* and *enjoy*.

Work on a project that brings about a clearer understanding of practical things can not fail to be an asset in the training of the deaf boys and girls. It teaches them to have a greater respect for the finished article, no matter by whom made, after they have gone through a similar process themselves.

The mind must be back of the hand in all work, so it necessitates thought on the part of the pupils. And if they are interested in what they are doing they will think about it. We should keep good things before them. Many of our children come from homes where beauty is entirely lacking, and they must be taught those things. Taste grows through guided practice. Only familiarity with beautiful things will develop a love for the beautiful.

Some of our older boys whose hands one might think were made only to guide the plow or wield the axe have learned to do some fine work. They are going to demand better things in their homes. All this tends toward refinement.

Our purpose is not to turn out artists, but to help our boys and girls to a better equipment in after life. We tend to accomplish this when we show them how to store their brains with facts about form and color, to increase their power of expression, and to develop their imagination and appreciation. The idea has been discarded long ago that art means a picture or a piece of statuary only.

The best teaching is that which results in fitting the pupil to study intelligently without a teacher. Having had this hand and eye training in shop,

domestic science, and studio, our pupils will be able to work out intelligently problems by themselves which will make them more useful citizens and better home makers. They need not be a class by themselves; instead, they should be able to compete successfully with the hearing along industrial lines.

The best art training comes from learning to do well the ordinary and necessary things of every-day life. The best work shows a perfect knowledge of the secret of all good art—the right use of the means at hand to produce definite results.

No craftsman or artist has ever learned his craft or art from a book. The hand, the head, and the heart must work together.

STELLA A. FISKE,
Formerly Instructor in the Wisconsin School,
Delavan, Wisconsin.

SCHOOL ITEMS

Arkansas Institute.—The names of the following teachers who joined the staff of this school within the present year, should have appeared in the list of instructors in American schools as given in the last January issue of the *Annals* : Miss Jean Agnew and Miss Edith Fitzgerald, both formerly of the Louisiana School; Miss Ura Mae Cowan and Mrs. Stella J. Wetherill, normal students at this school last year; Miss Frances M. Briscoe, Miss Elizabeth Heikes, Mrs. Pearl Hinkson, Mr. Daniel T. Cloud, Mr. I. S. Fowler, Miss Edith Coker, teacher of domestic science; Miss Laura Cantley, teacher of domestic art; Mr. O. E. Taylor, teacher of printing and Mr. W. F. Murphy, teacher of shoemaking.

Austine Institution.—The teaching staff of this school remains the same as last year, no changes having taken place.

Work will be begun in the spring, as soon as weather conditions permit, on operations connected with a new and more adequate water supply for this institution. Located as the building is, at a considerable elevation above the town of Brattleboro, the ordinary pressure from the local water works is insufficient to supply the upper floors, so that it was necessary to install an automatic electrical pumping apparatus, which has been in use since the opening of the school in September, 1912. An independent supply of pure water having been found available on the institution property, it has been decided to construct a reservoir on the heights above the building, which will provide an ample supply of water for all purposes, at a much lower cost than the present system entails.

Gallaudet College.—A change has been made in the calendar of the college year. Hereafter, the college work will begin a week earlier in the fall and close a week earlier in the spring; so that the college year will last from the

Wednesday before the last Wednesday in September until the second Wednesday in June. No changes have been made in the dates set for entrance examinations.

Improved Instruction.—Miss F. Elizabeth McLaughlin, a teacher in the literary department, resigned to retire from the profession. The place thus made vacant has been filled by the appointment of Hadley A. Hill, a graduate of Davidson College, Davidson, North Carolina.

Mississippi School.—A model 14 linotype machine has been installed and is now in operation. Several more pieces of playground equipment have been acquired, making this equipment perhaps the finest of its kind.

Montana School.—This school now has the largest enrollment in its history. The department for the deaf now has 84 pupils, and the department for the blind, 27.

North Dakota School.—The members of the Board of Administration held a meeting at the school recently in order to go over the matter of plans for the construction of the new boys' dormitory for which the last legislature appropriated $100,000. As the need for this building is urgent, it is hoped to get it under way soon, so that it will be ready for use when school opens next fall.

The Third Reunion of the Adult Deaf Association of North Dakota will be held at this school June 20 to 22, when it is expected to have the largest gathering of the kind ever held in the state.

Washington School.—A new hospital costing $28,000 has just been completed at this school. The building is a one-story fireproof brick structure, 90 feet long and 40 feet wide. The floors are concrete and covered with battleship linoleum. There are five separate wards, each holding from three to five beds. Each ward also has its own tile bathroom and lavatory. In addition, there are rooms for two nurses, a reception room and dispensary, a dining room,

pantry and kitchen, and two sun parlors. The building is complete in every detail, being well equipped with all appliances necessary for its purposes and is well furnished throughout.

MISCELLANEOUS

Dr. Alexander Graham Bell's Early Life.—Despite all his remarkable achievements in the realm of science, Dr. Alexander Graham Bell himself asserts that his life-work has centered about "the teaching of speech to the deaf." From the vantage point of his seventy-fifth year, Dr. Bell may well be credited with having done royal work in his chosen field.

In the *National Geographic Magazine,* March, 1922, Dr. Bell relates in most interesting fashion some of the experiences of his early days, experiences that indicate clearly where he obtained the inspiration for many of his accomplishments later on. Chief among these influences was the help he obtained in his boyhood from his grandfather, Alexander Bell of London (1790-1865), who was "the first in the family to take up the study of the mechanism of speech with the object of correcting defects of speech by explaining to his pupils the correct positions of the vocal organs in uttering the sounds that were defective." His father, Alexander Melville Bell (1819-1905), true to what had already become a Bell tradition, continued the work of defective speech correction, in time developing his system of visible speech symbols, the first attempt at a universal alphabet. Proof of the possibilities in this system of visible speech symbols invented by his father is evident from this incident in Dr. Bell's narrative.

> My father handed me a piece of paper with a very simple-looking symbol upon it, and I was requested to utter the sound represented. At first I thought it was simply the direction to pronounce the letter T, but soon noted a little diacritical mark attached to the symbol that had the technical meaning of "soft palate". This I translated to mean that the point of the tongue, instead of being applied to the upper gum, as in the ordinary method of forming T, was to be coiled

back in the mouth and placed against the soft palate—a thing I had never heard of or dreamed about before. I followed the direction, coiled my tongue backward, and tried to make a T-sound, with the point of the tongue against the soft palate. This resulted in a sound resembling both K and T, and the gentleman who had given the test expressed great satisfaction. He informed the audience that he was a professor of Hindustani, employed by the Indian Civil Service to teach young men Sanskrit and the languages of India. The sound he had given was the "Sanskrit cerebral T." He had been very unsuccessful, he said, in getting English students to master this sound and expressed surprise that Mr. Bell's son should have given it correctly at the very first trial, *without ever having heard the sound at all.*

Another fascinating episode relates to the attempt by Dr. Bell and his brother, while they were still boys, to construct an automaton speaking machine. Still another achievement was in their efforts to teach speech to a dog.

I was always much intrested in my father's examinations of the mouths of his elocutionary pupils. They differed in an extraordinary degree in size and shape, and yet all these variations seemed to be quite consistent with perfect speech. I then began to wonder whether there was anything in the mouth of a dog to prevent it from speaking, and commenced to make experiments with an intelligent Skye terrier we possessed.

By the application of suitable doses of food material, the dog was soon taught to sit up on his hind legs and growl continuously while I manipulated his mouth, and stop growling when I took my hands away. I took his muzzle in my hands and opened and closed the jaws a number of times in succession. This resulted in the production of the syllables "ma-ma-ma-ma," etc., as in the case of the talking machine.

The mouth proved to be too small to enable me to manipulate individual parts of the tongue, but upon pushing upward between the bones of the lower jaw, near the throat, I found it possible to completely close the passageway at the back of the mouth, and a succession of pushes of this character resulted in the syllables "ga-ga-ga-ga," etc.

The simple growl was an approximation of the vowel "ah," and this, followed by a gradual constriction and "rounding" of the labial orifice by the hand, became converted into the diphthong "ow," as in the word "how" (ah-oo), and we soon obtained the final element by itself—an imperfect "oo." The dog's repertoire of sounds finally consisted of the vowels "ah" and "oo," the diphthong "ow," and the syllables "ma" and "ga."

We then proceeded to manufacture words and sentences composed of these elements, and the dog's final linguistic accomplishment consisted in the production of the sentence "Ow-ah-oo-gamama," which, by the exercise of a little imagination, readily passed muster for "How are you, grandmamma?" (Ow-ah-oo-gamama).

The dog soon learned that his business in life was to growl while my hands were upon his mouth, and to stop growling the moment I took them away, and we both of us became quite expert in the production of the famous sentence, "How are you, grandmamma?"

The dog took quite a bread-and-butter interest in the experiments and often used to stand up on his hind legs and try to say this sentence by himself, but without manipulation was never able to do anything more than growl.

The fame of the dog soon spread among my father's friends, and people came from far and near to witness the performance. This is the only foundation for the newspaper stories that I had once succeeded in teaching a dog to speak.

Government Subsidies for French Schools.—La Gazette des Sourds-Muets, February, 1922, reports that the French Chamber of Deputies, in its session of November 28, 1921, appropriated the following sums toward the support of the national institutions for the deaf in France:

To the National Institution at Paris (for boys), 900,000 francs.
To the National Institution at Chambéry (for boys), 334,000 francs.
To the National Institution at Bordeaux (for girls), 280,000 francs.

Computed at current exchange values, these sums in American money would be, respectively, $81,900, $30,394, and $25,480.

Our Insular Schools.—The Special Mission to the Philippines, of which Major General Leonard Wood was chairman, stated in its final report that according to accepted ratios per thousand, there are now in the Philippines "between 5,000 and 10,000 defective children, deaf, dumb, or blind." It is to be regretted that this statement was not made more specific. As it is, a serious problem confronts the government of the Philippine Islands.

Miss Delight Rice, principal of the School for the Deaf and the Blind at Manila, states that the number of pupils present October 20, 1921, was 50, of whom 32 were boys and 18 girls. The combined method of instruction is em-

ployed, and 15 pupils are taught speech. The total number of pupils who have received instruction since the school was established in 1907 is 100. The staff of teachers numbers 7, of whom 4 are men. Three of the instructors are deaf. The average number of pupils in orally taught classes is 5, and in manually taught classes, 12. Gardening and carpentry are the vocational subjects taught. The "summer vacation" extends from April 1 to June 1. The school receives its support from the Philippine Government; recently the sum of $125,000 was appropriated for a new building.

The Hawaiian School for the Deaf,, at Honolulu, originally began its career in 1914 as the Territorial School for Defectives, when mentally defective children were taken in along with the deaf and the blind. Fortunately, a change in policy was effected, with the result that the feeble-minded children were removed to another institution, so that by September, 1921, it became simply the Territorial School for the Deaf and the Blind.

At present it is strictly a day-school, the pupils coming mainly from Honolulu. This, however, does not begin to meet the needs of the entire territory of Hawaii, for already about one hundred deaf and fifty blind children have been located in the various islands, children who should be in school. With this purpose in mind, it was decided to approach the Territorial Legislature for sufficient funds to establish a fully equipped residential school. The result was that in February, 1921, an appropriation of $125,000 was granted for the next biennial period, this sum to be apportioned as follows: $30,000 for dormitories; $2,500 for a laundry; $2,500 for servants' quarters; and $90,000 for maintenance, salaries, and repairs. The appropriation granted was less than what had been deemed necessary by the territorial department of instruction, so that in place of more substantial structures frame buildings will have to be erected. The school grounds, consisting of a little more than five acres, will be situated in a very charming setting near Waikiki Beach, in full view of Diamond Head.

The principal of the school is Miss Sara McBride, who formerly was a member of the teaching staff of the State School for the Deaf, Washington, for seven years. Assisting her are Miss Irene A. Lyons, formerly a teacher at the California School, and Miss Bessie Smith, for some years a teacher in the Detroit Day-School.

New Day-Schools.—A class for deaf children in connection with the public schools was opened in 1921 in Rochester, Minnesota, with Mrs. Charles Miller as teacher. There is also a special class, organized in 1913, at Duluth, Minnesota, where Miss Tillie Bretthauer is the teacher.

Efficiency of Artificial Aids to Hearing.—A very instructive resumé of the results of tests conducted under the direction of the Wallace Clement Sabine Laboratory, Geneva, Illinois, to determine the comparative efficiency of artificial aids to hearing appeared in the *Laryngoscope*, November, 1921. The difficulty in perfecting a really effective instrument is largely due to the present lack of mechanical means of measuring the intensity of sound apart from its pitch. The results obtained from every instrument designed for the measurement of sound intensity are modified by both variations of pitch and intensity.

The experiments involved a study of the general efficiency of various types of instruments, or so-called aids to impaired hearing, ranging from the open horn type of ear trumpet to the battery telephonic device. With some of the instruments the lowest tone was heard less loud than without their "aid," while in every case the highest tone was heard less loud with the instrument than without it. An interesting result noted was that the effect produced by the hand held close to the ear as a resonator was just as distinct as that produced by any of the so-called aids to hearing, with the exception of the largest of the horns and the telephone.

The general conclusions derived from the tests are epitomized in a final paragraph.

Viewed in the light of our present attainments in artificial aids to hearing, the immediate prospects for the alleviation of extreme deaf-

ness by such means are not bright. However, recent developments in telephony, notably in the use of the thermionic vacuum tube as a means of amplifying telephonic currents, afford considerable grounds for hope of securing the necessary increase of intensity. The problem of securing increased amplitude without increased distortion of the wave form is one that presents many physical difficulties. It is essential, at the same time, to know the distortions of sound produced by the defects in the mechanism of hearing. It is obvious, therefore, that the general problem is one calling for highly specialized knowledge and skill in the fields of both otology and physics, and it is to be hoped that the very near future will see a combined attack upon the problem from both the physiological and physical sides.

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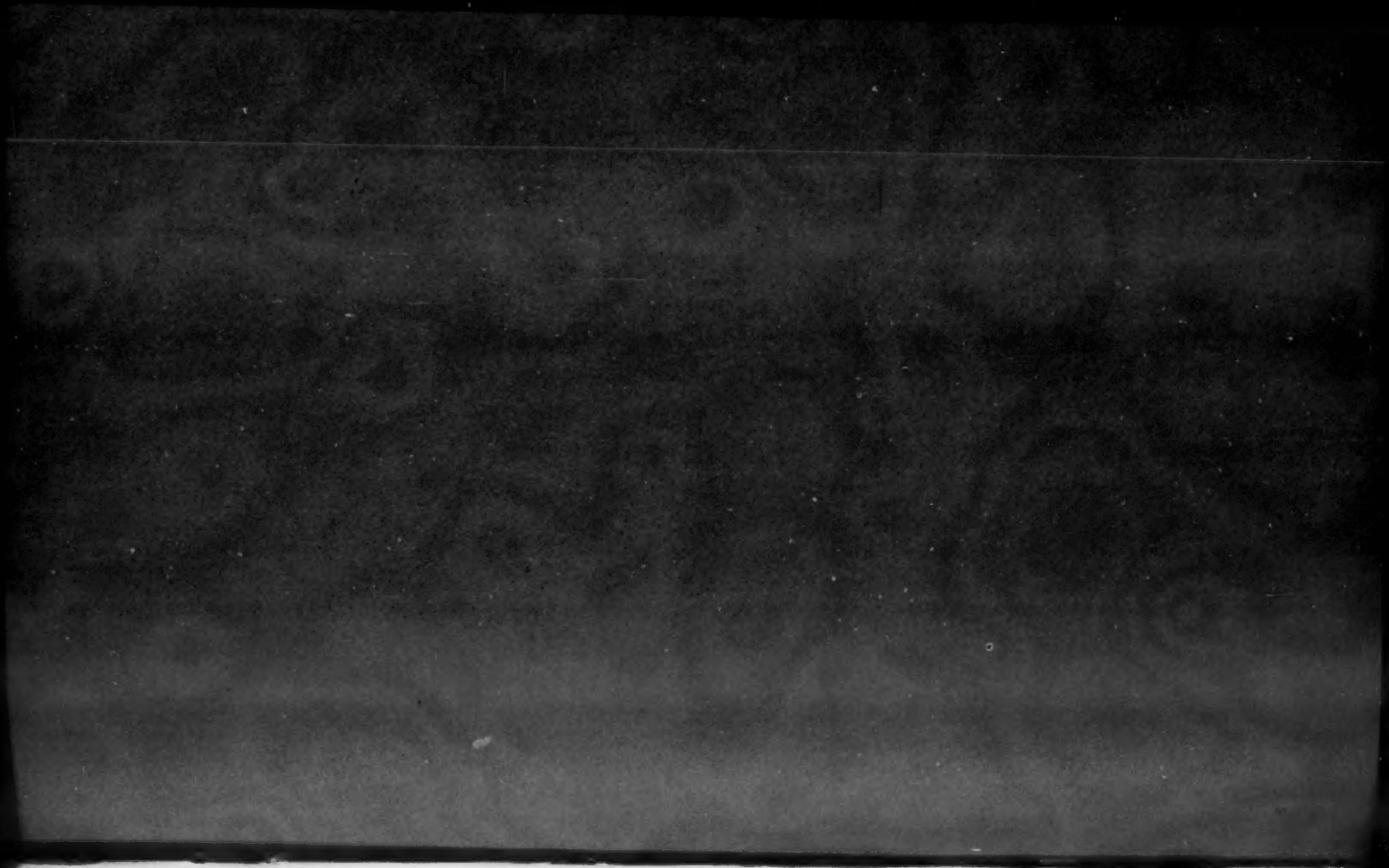

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